SANTA CLARA VALLEY WATER DISTRICT
MATADERO/BARRON CREEKS
LONG-TERM REMEDIATION PROJECT
MITIGATION AND MONITORING PLAN

(USACE File number 26877)

H. T. HARVEY & ASSOCIATES

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Prepared by:

H. T. HARVEY & ASSOCIATES
Dan Stephens, B.S., Principal
Patrick Boursier, Ph.D., Division Head
Eric Webb, Ph.D., Project Manager
Scott Terrill, Ph.D., Senior Wildlife Biologist
John Bourgeois, M.S., Restoration Ecologist
Ginger Bolen, Ph.D., Wildlife Biologist
J. Scott Yaeger, B.S., Wildlife Biologist
Kurt Flaig, M.S., Botanist
David Thomson, M.S., Restoration Ecologist

SANTA CLARA VALLEY WATER DISTRICT
LIBRARY
5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA 95118

Prepared for:

David J. Powers & Associates
1885 The Alameda, Suite 204
San Jose, California 95126

and

The Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

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3150 Almaden Expressway, Suite 145 • San Jose, CA 95118 • (408) 448-9450 • Fax: (408) 448-9454

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1.0 PROJECT DESCRIPTION

1.1 PROJECT SUMMARY

The Santa Clara Valley Water District (District) is proposing flood control measures along Matadero Creek between Alma Street and the Palo Alto Flood Basin (PAFB). The project is called "The Long-Term Remediation Project for the Matadero and Barron Creek Watersheds" and is located within the City of Palo Alto in Santa Clara County, California (Figure 1). The project is designed to increase flood protection by providing better conveyance of storm flows by raising floodwalls, rebuilding a bridge, and regular maintenance to remove sediment along Matadero Creek. The specific objectives of this project, as determined by the District and outlined in the project's final Environmental Impact Report (EIR) (David J. Powers & Associates, 2002), are as follows:

1. increase flood capacity to achieve the District's and the Federal Emergency Management Agency's (FEMA) one percent (100-year) riverine flood design flow level of protection;
2. provide equivalent levels of flood protection throughout the project area;
3. protect existing sensitive habitat within the Matadero Creek watershed;
4. provide for efficient and cost-effective flood control maintenance;
5. remove the existing flood prone areas from the Flood Insurance Rate Map; and
6. reduce the risk of flooding from Matadero and Barron Creeks in the tidal inundation zone.

The entire project site extends for approximately 1.5 miles along Matadero and Barron Creeks from the PAFB upstream to Alma Road in the City of Palo Alto (Figure 1). The permit application packages for the project were divided into two separate submittals, upstream and downstream of State Route 101 (Route 101). All significant biological impacts for the project are associated with the portion downstream of Route 101. Thus, this Mitigation and Monitoring Plan pertains to the area downstream of Route 101 only.

Downstream of Route 101, the project proposes to construct a bypass channel with a bottom width of 55-feet, (with a proposed maximum construction area extending 10-feet beyond the width of the channel and side slopes on either side). The bypass channel will be located along the edge of the City of Palo Alto's Municipal Services Center (MSC) and convey flood flows from the Matadero/Barron Creek watershed to the PAFB (Figure 2). The bypass channel invert will be constructed with a partial concrete bottom that extends 30 feet from the toe of slope along the MSC side of the channel. The remaining 25 feet of channel bottom will be native soil. The side slope of the Matadero Creek side of the bypass channel will consist of native soil at a 2:1 slope, except in locations where some hardscape will be necessary to ensure channel integrity. From this outboard edge of the bypass channel, a 3:1 graded slope will conform to the existing grade. The side slope of the bypass along the MSC will consist of a knee wall that will vary between 2 and 3 feet high. Furthermore, a 3:1 graded slope will extend from the top of the knee wall to a floodwall adjacent to the MSC.

Land uses surrounding the project area include residential, industrial, and some open space within the PAFB and along San Francisco Bay. Downstream of Route 101 Matadero Creek is surrounded by high quality willow riparian habitat (note however that several undesirable invasive non-native plant species are present within this habitat and they will be eradicated to significantly enhance riparian habitat values). In the vicinity of the proposed bypass channel additional habitats include freshwater marsh, diked coastal salt marsh, ruderal field, shrub scrub habitats, and an access road (Figure 2).

The work being carried out downstream of Route 101 will permanently impact a total of 0.77 acres of regulated habitats. Of the total impacts, 0.11 acres are to freshwater marsh habitat under the jurisdiction of the United States Army Corps of Engineers (USACE) and 0.66 acres are to riparian habitat under the jurisdiction of the California Department of Fish and Game (CDFG) (Table 1 and Figure 2). Construction activities will also temporarily impact 0.54 acres of regulated habitats. Of these temporary impacts, 0.06 acres are to freshwater marsh habitat under the jurisdiction of USACE and 0.48 acres are to riparian habitat under the jurisdiction of CDFG (Figure 2). The remaining 0.18 acres of temporary impacts to USACE jurisdictional habitats (Other Waters of the U.S.) are from the dewatering of a small portion of Matadero Creek during construction of the bypass channel (not shown on Figure 2). This dewatering activity is considered to be self-mitigating (see below).

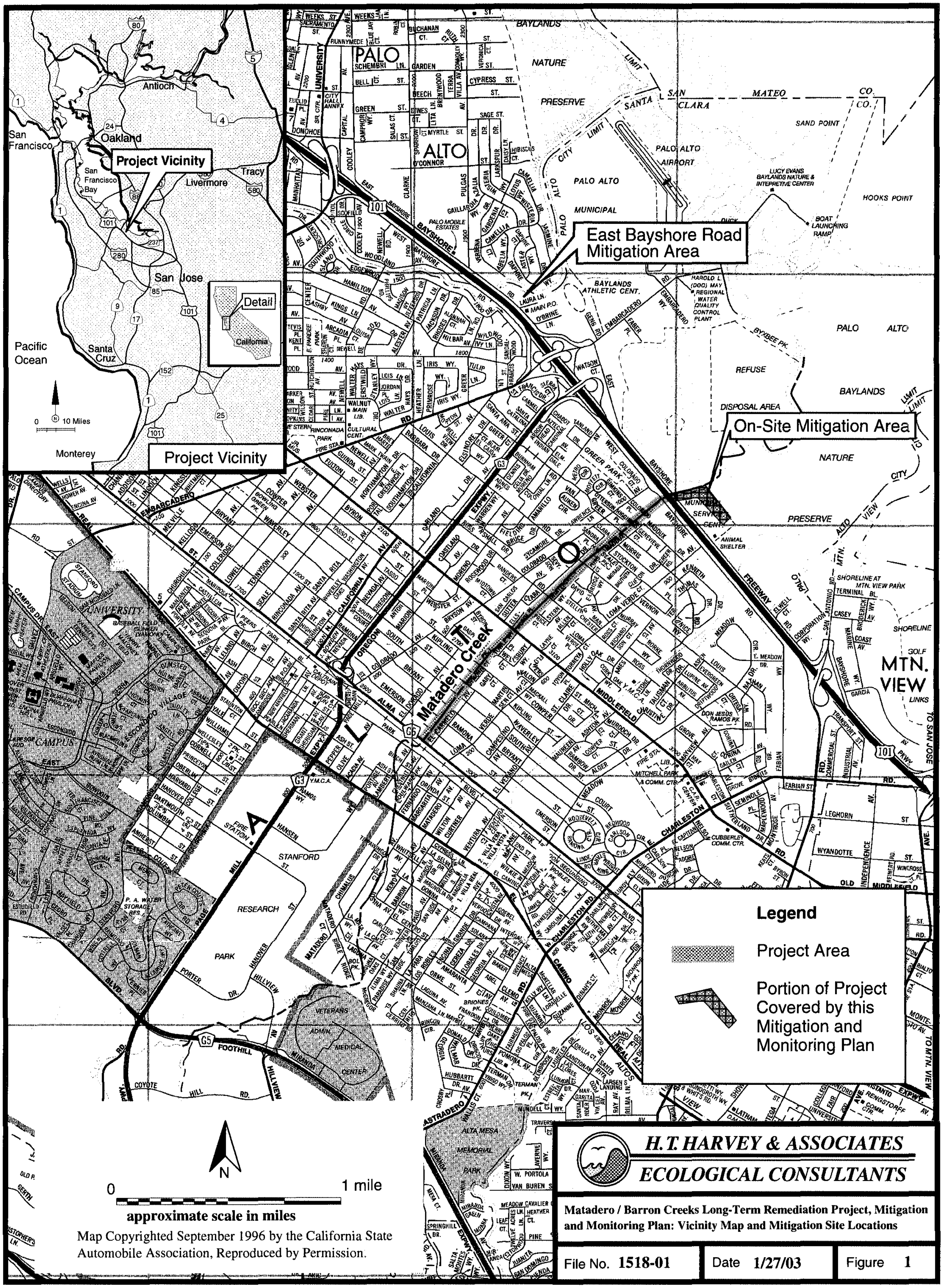
This mitigation and monitoring plan outlines measures that will fully mitigate for all temporary and permanent impacts to biotic resources associated with the proposed project. These mitigation measures include the creation of a minimum of 2.46 acres of riparian habitat and 0.28 acres of wetland habitat. All of the wetland mitigation and most of the riparian mitigation will occur on-site, however, some of the riparian habitat mitigation will occur off-site at the East Bayshore Road Mitigation Site (Figures 1 and 3).

1.2 RESPONSIBLE PARTIES

The District will be responsible for all project permitting, oversight, and funding. Furthermore, the District will be responsible for all maintenance and monitoring requirements until such time as all regulatory agency requirements are met and the monitoring criteria are accomplished. The District has an easement on lands for the proposed on-site mitigation; the District owns the East Bayshore Road Mitigation site. H.T. Harvey & Associates prepared this Mitigation and Monitoring Plan. Dan Stephens is the principal-in-charge and can be reached at (408) 448-9450, extension 401. Eric Webb, Ph.D., is the project manager and can be reached at (831) 786-1700, extension 102.

1.3 CONSTRUCTION SCHEDULE

Construction of the on-site mitigation will be after project construction and is expected to begin in late 2004. Construction of the off-site mitigation (East Bayshore Road) is expected to begin in the summer of 2005.



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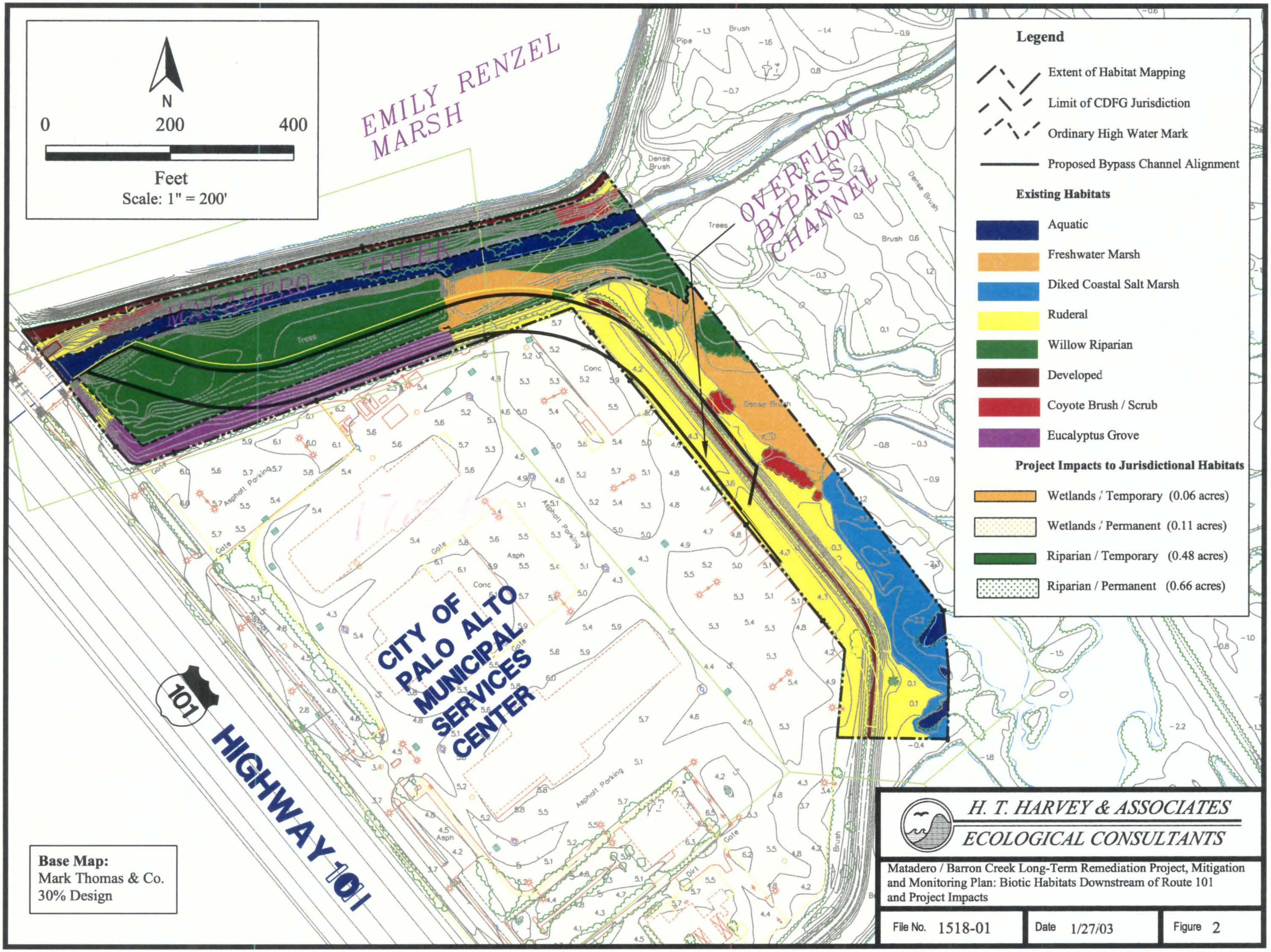
Matadero / Barron Creeks Long-Term Remediation Project, Mitigation and Monitoring Plan: Vicinity Map and Mitigation Site Locations

File No. **1518-01**	Date **1/27/03**	Figure **1**

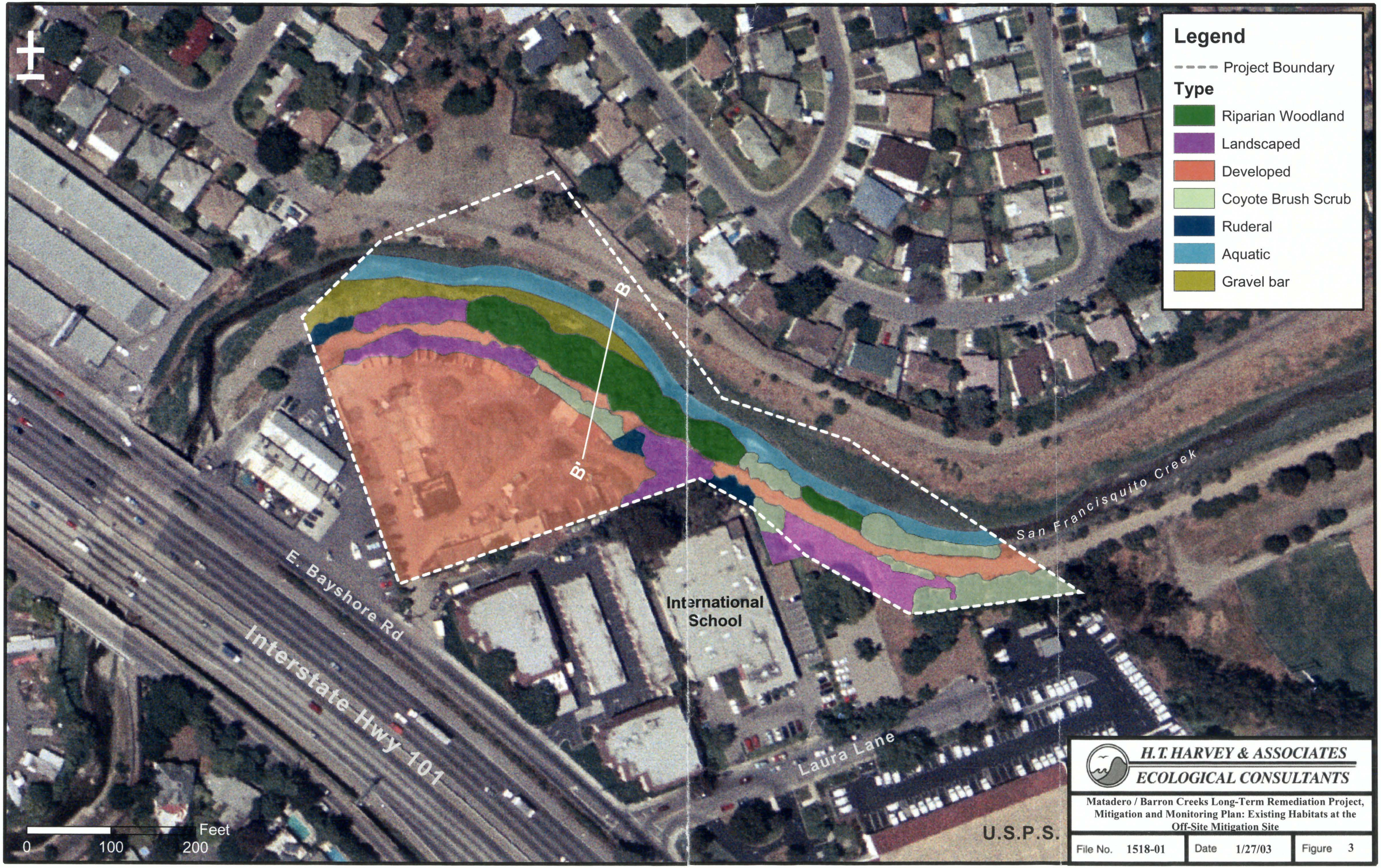


Matadero / Barron Creek Long-Term Remediation Project, Mitigation and Monitoring Plan: Biotic Habitats Downstream of Route 101 and Project Impacts

File No. 1518-01

Date 1/27/03

Figure 2



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Matadero / Barron Creeks Long-Term Remediation Project, Mitigation and Monitoring Plan: Existing Habitats at the Off-Site Mitigation Site

File No. 1518-01	Date 1/27/03	Figure 3

1.4 TYPES, FUNCTIONS, AND VALUES OF IMPACT AREAS

1.4.1 Environmental Impacts Within the Project Area

Environmental Effects. The description of project impacts provided below is separated according to habitat type. The impact area occurs downstream of the Route 101, adjacent to the PAFB on Matadero Creek. Potential impacts will occur to willow riparian habitat, freshwater wetlands, ruderal field habitat, and a eucalyptus grove. However, it should be noted that the bypass channel is located within portions of the willow riparian corridor that contain large areas of invasive, non-native vegetation, and the bypass alignment was designed to avoid the high quality habitat immediately adjacent to the creek channel. Figure 2 shows habitats and impact areas present on site. Appendix A contains a list of the plant species observed at the site.

The vegetation and wildlife in the impact areas are discussed in detail in the Biological Resources Section of the Environmental Impact Report (H. T. Harvey & Associates 2002a); all impacts to regulated habitats are discussed below and summarized in Table 1. The habitats located within the area of impact are outlined below.

Table 1. Impacts to Regulated Habitats at the Matadero Creek Flood Bypass Channel, Santa Clara County, California.

Habitat Type	Permanently Impacted (Acres)	Temporarily Impacted (Acres)
Willow Riparian (CDFG)	0.66	0.48
Freshwater Marsh (USACE)	0.11	0.06

Willow Riparian

Approximately 3.18 acres of willow riparian habitat were mapped downstream of Route 101 in the vicinity of the project site (Figure 2). This number represents the finite area surveyed for the project and does not represent the extent of riparian habitat in the PAFB. The riparian corridor occupies both banks of Matadero Creek downstream of Route 101 and ranges from 50 to 200 feet in width (please note that existing willow riparian habitat extends beyond those areas mapped on Figure 2). To the south of the channel the riparian corridor abuts a line of eucalyptus trees before the fenced boundary of the MSC. North of the channel the riparian corridor is contained within a narrow strip behind a levee; across the levee is the Emily Renzel Marsh Restoration Area.

Vegetation. Because there has been no maintenance dredging along this reach of Matadero Creek for 30 years, the willow riparian corridor is wide and well developed along the southern bank approximately 400 feet downstream of Route 101, while it is narrow and less developed to the north due to the levee and access road around the Emily Renzel Marsh. The willow riparian habitat on the site consists primarily of a moderately well developed stand dominated by arroyo willow (*Salix lasiolepsis*) and shining willow (*Salix lucida* ssp. *lasiandra*). The stand also contains eucalyptus (*Eucalyptus* sp.), California buckeye (*Aesculus californica*), box elder (*Acer negundo*), and Northern California black walnut trees (*Juglans californica* var. *hindsii*).

Associate shrub species identified within the riparian understory, many of which are non-native and invasive, include Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), and blue elderberry (*Sambucus mexicana*). Groundcover consisted of herbaceous species including willow dock (*Rumex salicifolius*), watercress (*Rorripa nasturtium-aquaticum*), California mugwort (*Artemisia douglasiana*), common yarrow (*Achillea millefolium*), German ivy (*Senecio mikanioides*), and greater periwinkle (*Vinca major*). A somewhat continuous and dominant patch of the non-native, invasive giant reed (*Arundo donax*) was observed on the south side of Matadero Creek.

Wildlife. The wildlife habitat value of the willow riparian vegetation is somewhat limited by its proximity to Route 101 and the MSC, its young age, and a lack of more mature riparian vegetation nearby. Nevertheless, it represents fairly high-quality wildlife habitat due to the dense nature of the vegetation, the presence of a well-developed, although largely non-native, understory, and its bayside location adjacent to open space in the PAFB.

Amphibians and reptiles expected to occur here include the Pacific treefrog (*Hyla regilla*), western fence lizard (*Sceloporus occidentalis*), southern alligator lizard (*Gerrhonotus multicarinatus*), racer (*Coluber constrictor*) and gopher snake (*Pituophis melanoleucus*).

The diversity of nesting birds is limited by the lack of very tall, large-diameter trees, however, a number of species have the potential to breed here, including the White-tailed Kite (*Elanus caeruleus*), Mourning Dove (*Zenaida macroura*), Anna's Hummingbird (*Calypte anna*), Bushtit (*Psaltriparus minimus*), Bewick's Wren (*Thryomanes bewickii*), California Towhee (*Pipilo crissalis*), Song Sparrow (*Melospiza melodia*), Lesser Goldfinch (*Carduelis psaltria*) and American Goldfinch (*Carduelis tristis*). Many species of migrants, including Allen's Hummingbird (*Selasphorus sasin*), Pacific-slope Flycatcher (*Empidonax difficilis*), Warbling Vireo (*Vireo gilvus*), Swainson's Thrush (*Catharus ustulatus*), Black-headed Grosbeak (*Pheucticus melanoleucus*), House Wren (*Troglodytes aedon*), Willow Flycatcher (*Empidonax traillii*), Western Tanager (*Piranga ludoviciana*), Orange-crowned Warbler (*Vermivora celata*), Wilson's Warbler (*Wilsonia pusilla*) and Yellow Warbler (*Dendroica petechia*) occur here during migration. In the winter, large numbers of Lincoln's (*Melospiza lincolnii*), White-crowned (*Zonotrichia leucophrys*), Golden-crowned (*Zonotrichia atricapilla*) and Fox (*Passerella iliaca*) Sparrows, as well as Ruby-crowned Kinglets (*Regulus calendula*), Hermit Thrushes (*Catharus guttatus*) and Yellow-rumped Warblers (*Dendroica coronata*) are expected to occur in this riparian habitat.

Mammals expected to occur here include the California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*).

Freshwater Marsh

Approximately 0.48 acres of non-contiguous freshwater marsh habitat were mapped in the eastern part of the project site located downstream of Route 101 south of Matadero Creek (Figure 2). The habitat stretches from the PAFB around the northern corner of the MSC for several hundred feet to a maximum width of 50 feet. (The actual extent of freshwater marsh habitat in the general vicinity is greater than the 0.48 acres that were mapped for impact analysis purposes.) The habitat is surrounded by willow riparian, coyote shrub scrub, and diked coastal salt marsh habitats.

Vegetation. A dense cover of narrow-leaved cattail (*Typha angustifolia*) dominates the freshwater marsh habitat with ruderal species including tall wheatgrass (*Elytrigia pontica* ssp. *pontica*) and poison hemlock (*Conium maculatum*) occupying the outer, slightly elevated habitat margins.

Wildlife. Several species of reptiles and amphibians are expected to occur in the freshwater marsh habitat including the racer and common garter snake (*Thamnophis sirtalis*). In addition, western toads (*Bufo boreas*) and Pacific treefrogs may breed here. Marsh-nesting bird species such as the Song Sparrow, Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*), Marsh Wren (*Cistothorus palustris*), and Red-winged Blackbird (*Agelaius phoeniceus*) are common in this type of habitat, and species such as the Sora (*Porzana carolina*), Virginia Rail (*Rallus limicola*) and Lincoln's Sparrow may use it for foraging and cover during the non-breeding season. Mammals likely to forage in this habitat include the California vole, house mouse, raccoon and opossum.

Eucalyptus Grove

Vegetation. An approximately 0.52-acre eucalyptus grove is found in the eastern region of the project site located downstream of Route 101 (Figure 2). This grove is south of Matadero Creek, and is dominated by approximately 50 mature blue gum (*Eucalyptus globulus*) and silver-leaved (*Eucalyptus pulverulenta*) eucalyptus trees growing up to 50 feet in height. The trees are planted in a row approximately 20 feet wide along the northwestern edge of the MSC directly adjacent to the east side of East Bayshore Road. The eucalyptus trees form a closed overstory canopy with little understory vegetation. The canopy partially overlaps a portion of the willow riparian canopy along the south side of Matadero Creek.

Eucalyptus is an invasive, non-native tree species. Blue gum are constantly shedding their aromatic leaves, which are slow to decompose and cause a heavy detritus layer that, along with the aromatic compounds present in the leaves, can prevent the establishment of understory vegetation and affect soil acidity levels. They are typically shallow-rooted trees that utilize large quantities of water.

Wildlife. The eucalyptus trees along the edge of the MSC are used as foraging habitat by most of the bird species expected to occur in the adjacent riparian habitat. Although most of these species are expected to be less common in the eucalyptus trees than in the native riparian habitat, a few, such as Anna's Hummingbird and the Yellow-rumped Warbler, are common in the eucalyptus. In addition, these trees may be used as nesting sites by raptors such as the White-tailed Kite and Cooper's Hawk (*Accipiter cooperii*). Bird and mammal species associated with low, dense vegetation are expected to be rare in, or absent from, the eucalyptus grove.

Ruderal Field

Vegetation. The majority of the work to be carried out for this project occurs within the approximately 2.10 acres of ruderal (disturbed) habitat in the project vicinity downstream of Route 101 (Figure 4). Most of the ruderal habitat is along the east and west sections of the gravel maintenance road situated south of Matadero Creek, and directly adjacent to the eastern section of the MSC. Small patches of ruderal habitat are also located along the north bank of Matadero Creek and in and around the eucalyptus grove.

The ruderal habitat located downstream of Route 101 is dominated by a mixture of invasive non-native annual grasses and forbs that are common to the Santa Clara Valley. Plant species include tall wheatgrass, German ivy, Mediterranean barley (*Hordeum hystrix*), smilo grass (*Piptatherum miliaceum*), sweet fennel (*Foeniculum vulgare*), yellow star-thistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), bristly ox-tongue (*Picris echioides*), wild radish (*Raphanus sativus*), and cheeseweed (*Malva parviflora*).

Wildlife. Although most of the wildlife species found in ruderal habitats are common species present in adjacent habitats occasionally forage in ruderal areas as well. The western toad, western fence lizard and gopher snake are expected to occur in this area. Lesser Goldfinches and California Towhees may nest in this habitat and other species, such as the Bushtit, White-crowned Sparrow, and Golden-crowned Sparrow are expected to forage here. Mammals common in this habitat include the California vole, Botta's pocket gopher, deer mouse, house mouse, opossum, raccoon, and striped skunk.

1.4.2 Impacts to Regulated Habitats

There are two types of regulated habitats (USACE and CDFG) within the project area (Table 1). On the project site downstream of Route 101, 0.48 acres of USACE jurisdictional waters, consisting of freshwater wetlands, were mapped. In addition, 3.18 acres of CDFG jurisdictional area (willow riparian habitat) were mapped in the vicinity of the proposed bypass channel (Please note that the project vicinity contains more than 3.18 acres of willow riparian and 0.48 acres of freshwater marsh habitats, however, only the project's area of potential impact was mapped for this document).

In total, 0.11 acres of freshwater wetlands and 0.66 acres of willow riparian habitat will be permanently impacted through construction of the flood bypass channel (Figure 2). The bypass channel was designed to avoid the high quality habitat immediately adjacent to the channel. Although the impacted areas are part of the larger willow riparian habitat, the bypass channel will actually be removing large areas of non-native invasive species such as giant reed, German ivy and periwinkle.

1.4.3 Special Status Species

Information concerning threatened, endangered, or other special-status species that may occur in the area was collected from several sources and reviewed by H. T. Harvey & Associates' biologists. The sources consulted included the CDFG's Natural Diversity Data Base (CNDDB 2001), California Wildlife Habitat Relationships species notes (CDFG 1999), and miscellaneous information available through the U.S. Fish and Wildlife Service (USFWS), CDFG, and technical publications. The California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001) and *The Jepson Manual* (Hickman 1993) supplied information regarding the distribution and habitats of vascular plants in the vicinity.

A search of published accounts of these species was conducted for the USGS Palo Alto and Mountain View quadrangles, in which the project site occurs, and for surrounding quadrangles, including Cupertino, San Jose West, Milpitas, Mindego Hill, La Honda, Woodside, San Mateo, Redwood Point, Newark, and Niles using CNDDB Rarefind reports (2001). All species listed as occurring in Santa Clara and San Mateo counties and present on CNPS Lists 1A, 1B, 2, 3 or 4 were reviewed.

Several species of both plants and animals were identified as potentially inhabiting the area. Reconnaissance-level surveys were then performed to identify suitable on-site habitat for these special status species.

Special-Status Plant Species

Reconnaissance-level field surveys were conducted at the project site on December 6, 2001 for habitats capable of supporting special-status plants by H. T. Harvey & Associates' botanist Kurt Flaig, M.S. The survey method involved hiking the entire project area in a pattern that allowed all portions of the site to be generally observed.

Three special-status plant species were identified as having the greatest potential to occur on or adjacent to the site (Table 2). These species include: sea blite (*Suaeda californica*, federally-listed endangered), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*, CNPS 1B), and hairless popcorn flower (*Plagiobothrys glaber*, CNPS 1B, presumed extinct).

Special-Status Animal Species

A reconnaissance-level field survey of the entire project area for special-status animal species was conducted on December 6, 2001 by H. T. Harvey & Associates wildlife biologists Ginger Bolen, Ph.D. and J. Scott Yaeger, M.S. (candidate). In addition, notes from previous surveys conducted by Steve Rottenborn, Ph.D., who hiked the entire study area on November 4, 1999 and on numerous prior occasions, were consulted. Lower Matadero Creek, the adjacent Emily Renzel wetlands and the PAFB are well covered by birders, and known records of bird species reported from the project vicinity were also reviewed.

Special-status animal species that occur in the vicinity in habitats similar to those found on the project site, as well as their legal status and likelihood of occurrence on-site, are given in Table

2. Expanded descriptions are included below only for those species for which potentially suitable habitat occurs on the project site, or for which the resource agencies have expressed particular concern.

Federal or State Endangered or Threatened Species

Sea blite (*Suaeda californica*). Federal listing status: Endangered; State listing status: None; CNPS List 1B. Sea blite is a slightly woody evergreen shrub found in coastal salt marshes. The blooming period ranges from July to October. The only known extant population of sea blite occurs at Morro Bay. Previously, it was prevalent around San Francisco Bay. The only recorded occurrence of this species in Santa Clara County was reported from the Palo Alto Yacht harbor in 1971 (CNDDB 2001). This species is considered by CNPS (2001) to be extirpated from the San Francisco Bay area. Suitable habitat is not present on the project site and no further surveys are warranted.

Steelhead Trout (*Oncorhynchus mykiss*). Federal listing status: Threatened; State listing status: Species of Special Concern. The steelhead trout is an anadromous form of rainbow trout (i.e., it migrates upstream from the ocean/bay to spawn). Young steelhead usually remain in freshwater streams one to two years before migrating to the ocean. They typically grow rapidly for one to two years in the ocean before returning to freshwater streams to spawn. Steelhead do not necessarily die after spawning as salmon do, and they may survive to spawn two or three seasons. Steelhead trout are generally found in clear, cool, perennial sections of relatively undisturbed streams. Preferred streams typically support dense canopy cover but are usually free of rooted or aquatic vegetation. Gravel substrates are the optimum spawning habitat for these trout. Steelhead usually cannot survive long in pools or streams with water temperatures above 70 degrees Fahrenheit (°F) for juveniles and adults and above 58°F for developing embryos.

Steelhead are not expected to spawn in Matadero Creek due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of the stream immediately upstream from the site. In addition, no suitable spawning habitat is present within the heavily sedimented reaches of the stream within the project area. However, it is possible that steelhead spawning elsewhere in the South San Francisco Bay area could enter the PAFB through the gates in the northeast corner of the basin (H.T. Harvey & Associates 2002a), and that adults and juveniles could occur on occasion in the lower reaches of Matadero Creek.

California Red-legged Frog (*Rana aurora draytonii*). Federal listing status: Threatened; State listing status: Species of Special Concern. The USFWS listed the California red-legged frog as federally threatened on May 23, 1996 (61 Fed. Reg. 25813). The red-legged frog is a medium-sized frog with reddish-colored legs. This species is generally restricted to riparian habitats in California and northern Baja California. Red-legged frogs prefer deep, quiet pools (more than 3 feet deep) in creeks, rivers, or lakes below 1,000 meters in elevation (about 3,000 feet). Habitat requirements include fresh emergent or dense riparian vegetation, especially willows adjacent to shorelines. Red-legged frogs can survive in seasonal bodies of water that are dry for short periods if there is a permanent water body or dense vegetation stand nearby. The adults are normally active at night and breed in ponds and creeks or in marshes during the late

Table 2. Special-status plant and animal species, their status, and potential occurrence in the Matadero Creek Flood Control project impact area.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Federal or State Endangered Species			
Sea blite (*Suaeda californica*)	FE, CNPS 1B	Coastal salt marshes and swamps	Populations have historically been found in the vicinity of the project site. Suitable habitat is present on the site but not within the footprint of construction. Therefore, surveys are not warranted.
Chinook salmon – Winter Run (*Oncorhynchus tshawytscha*)	FE, SE	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	No winter-run chinook spawn in South S.F. Bay-area streams, and no chinook are expected to spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. Presumed absent.
Chinook salmon – Spring Run (*Oncorhynchus tshawytscha*)	FT	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	No spring-run chinook spawn in South S.F. Bay-area streams, and no chinook are expected to spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. Presumed absent.
San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)	FE, SE	Wetlands, especially those dominated by herbaceous wetland vegetation, on the San Francisco Peninsula.	Site is outside the range of this subspecies; presumed absent.
American Peregrine Falcon (*Falco peregrinus anatum*)	SE, SP	Nests on cliffs or very high bridges and buildings, forages in a variety of habitats.	Rare to occasional forager on site; no suitable breeding habitat on site.
California Clapper Rail (*Rallus longirostris obsoletus*)	FE, SE, SP	Salt marsh habitat dominated by pickleweed and cordgrass.	No suitable habitat on or near site; presumed absent.
California Least Tern (*Sterna antillarum brownii*)	FE, SE	Nests primarily along the coast on bare or sparsely vegetated, flat substrates.	The pond just south of the MSC (in the PAFB) could provide suitable foraging habitat, although there are no known records of Least Terns foraging in this pond, and this pond will not be impacted directly by the project. No nesting habitat is present on or near the site.
Willow Flycatcher (*Empidonax traillii*)	FE (*extimus*) SE (*brewsteri*)	Breeds locally in riparian habitats in mountains and southern deserts.	Uncommon migrant; those occurring on site are probably not of the listed races.
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)	FE, SE	Salt marsh habitat dominated by pickleweed.	Potential habitat immediately adjacent to impact area. Presumed present in these areas.
Federal or State Threatened or Rare Species			
Steelhead Trout (*Oncorhynchus mykiss*)	FT (Central Calif. Coast ESU)	An anadromous form of rainbow trout that migrates upstream from the Pacific or the S. F. Bay to spawn. Prefers streams with dense canopy.	Does not spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. However, it is possible that post-breeding adults or juveniles from other South Bay streams could, on rare occasion, occur in lower Matadero Creek.
California Red-legged Frog (*Rana aurora draytonii*)	FT, SP, CSSC	Streams, freshwater pools, and ponds with overhanging vegetation.	No known occurrences along lower Matadero Creek or elsewhere in project vicinity, presumed absent from site. Records exist for upper watershed, however, distance and inhospitable habitat prevent occurrence of dispersants or flood event washdowns.
California Black Rail (*Laterallus jamaicensis coturniculus*)	ST	Breeds in a variety of wetland types; in San Francisco Bay area, nests in pickleweed marshes.	Marginal habitat present on portions of the site outside the impact area dominated by diked salt-marsh habitat at the edges of the Palo Alto flood control basin, although this species has not been recorded in the flood control basin or elsewhere in the immediate project vicinity. No confirmed breeding records for Santa Clara County. Presumed absent.
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	FT, CSSC	Nests on sandy beaches on marine and estuarine shores.	The pond just south of the MSC (in the PAFB) could provide marginal foraging habitat, although there are no known records of this species foraging in this pond, and it will not be impacted directly by the project. No nesting habitat is present on or near the impact area.
Federal or State Candidate Species			
Fall-run Chinook salmon (*Oncorhynchus tshawytscha*)	FC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	Does not spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. However, it is possible that juveniles from other South Bay streams could, on rare occasion, occur in lower Matadero Creek.

Table 2. Special-status plant and animal species, their status, and potential occurrence in the Matadero Creek Flood Control project impact area.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
California Tiger Salamander (*Ambystoma californiense*)	FC, CSSC	Vernal or temporary pools in annual grasslands, or open stages of woodlands.	No suitable habitat on site; presumed absent.
California Species of Special Concern			
Foothill Yellow-legged Frog (*Rana boylii*)	CSSC	Rocky streams in a variety of habitats. Found in coast ranges.	No suitable habitat on site; presumed absent.
Western Pond Turtle (*Clemmys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	No known occurrences along lower Matadero Creek or elsewhere in project vicinity. Presumed absent from site.
American White Pelican (*Pelecanus erythrorhynchos*)	CSSC	Forages on fish found in freshwater lakes and rivers, nests on islands in lakes.	No suitable foraging habitat within the impact area, however, the pond just south of the MSC provides suitable foraging habitat. This pond will not be impacted directly by the project. Does not nest in S.F. Bay area.
Double-crested Cormorant (*Phalacrocorax auritus*)	CSSC	Colonial nester on coastal cliffs, offshore islands, electrical transmission towers, and along interior lake margins. Feeds on fish.	Forages in Matadero Creek and in the pond just south of the MSC, although no nesting habitat is present on or immediately adjacent to the site.
Northern Harrier (*Circus cyaneus*)	CSSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	Breeds and forages in the Palo Alto flood control basin. Expected to forage on-site occasionally, and could possibly breed near (but not in) impact areas.
Sharp-shinned Hawk (*Accipiter striatus*)	CSSC	Nests in dense woodlands, forages in many habitats in winter and migration.	Occurs on-site only as a migrant and winter visitor.
Cooper's Hawk (*Accipiter cooperi*)	CSSC	Nests in woodlands, forages in many habitats in winter and migration.	Although expected to occur primarily as a migrant and winter visitor, potential breeding habitat is present in the riparian woodland on-site, and this species could possibly nest on-site.
Golden Eagle (*Aquila chrysaetos*)	CSSC	Breeds on cliffs or in large trees or structures, forages in open habitats.	Possibly a rare forager over site. Not expected to forage on-site frequently. No breeding habitat on or near site.
Merlin (*Falco columbarius*)	CSSC	Uses many habitats in winter and migration.	Occasional forager during migration and winter.
Prairie Falcon (*Falco mexicanus*)	CSSC	Breeds on cliffs or in large trees or structures, forages in open habitats.	Possibly a rare forager over site. Not expected to forage on-site frequently. No breeding habitat on or near site.
Long-billed Curlew (*Numenius americanus*)	CSSC	Forages in a variety of open habitat types from marshes and mudflats to pastures and dry agricultural fields	The pond just south of the MSC (in the PAFB) provides suitable foraging habitat, although this pond will not be impacted directly by the project. Does not nest in S.F. Bay area.
California Gull (*Larus californicus*)	CSSC	Nests on inland lakes and in salt ponds around S. F. Bay.	The pond just south of the MSC (in the PAFB) provides suitable roosting and foraging habitat, although this pond will not be impacted directly by the project. No breeding habitat on or near site.
Burrowing Owl (*Athene cunicularia*)	CSSC	Nests and forages in flat, open habitats, such as grasslands and ruderal areas, having suitable nesting and roosting burrows.	Habitat on-site marginal, at best, for this species due to the paucity of ground squirrels and suitable open upland areas with short vegetation. Present at the nearby Palo Alto landfill, but expected to occur rarely, if at all, on-site.
Vaux's Swift (*Chaetura vauxi*)	CSSC	Breeds in north coast and montane coniferous forests; forages aerially.	Occasional migrant, foraging over site.
California Horned Lark (*Eremophila alpestris actia*)	CSSC	Short-grass prairie, annual grasslands, coastal plains, open fields.	No suitable habitat on-site; presumed absent.
Loggerhead Shrike (*Lanius ludovicianus*)	CSSC	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat present on-site; probably breeds on-site.
California Yellow Warbler (*Dendroica petechia brewsteri*)	CSSC	Breeds in riparian woodlands, particularly those dominated by cottonwoods and willows.	Foraging habitat and marginal breeding habitat present on-site. Breeding unlikely (no recent breeding records from site vicinity).
Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Breeds primarily in fresh and brackish marshes in tall grass, tules, willows; uses salt marshes more in winter.	Breeds on-site in riparian and tall freshwater marsh vegetation, and in dense herbaceous ruderal vegetation.
Alameda Song Sparrow (*Melospiza melodia pusillula*)	CSSC	Breeds in salt marsh, primarily in marsh gumplant and cordgrass along channels.	Song Sparrows nest in riparian and tall freshwater marsh vegetation on-site, although it is not known whether those present on-site are *pusillula*.

Table 2. Special-status plant and animal species, their status, and potential occurrence in the Matadero Creek Flood Control project impact area.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Tricolored Blackbird (*Agelaius tricolor*)	CSSC	Breeds near fresh water in dense emergent vegetation.	Marginal breeding habitat on-site; not known to nest in project vicinity. May occasionally forage on-site, particularly during nonbreeding season.
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves, mine tunnels, and buildings in a variety of habitats.	Possibly a rare forager over site; no roosting habitat on-site.
California Mastiff Bat (*Eumops perotis californicus*)	CSSC	Forages over many habitats, requires tall cliffs or buildings for roosting.	Possibly a rare forager over site; no roosting habitat on-site.
Pallid Bat (*Antrozous pallidus*)	CSSC	Forages mostly over open habitats, requires rocky crevices, tree cavities, mines, caves or buildings for maternity roosts. Night roosts in/on buildings, trees, rocky areas.	Possibly a rare forager over site; no roosting habitat on-site.
San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)	CSSC	Found in hardwood forests and oak riparian habitat.	No dens observed on-site. Site isolated from occupied habitat by urbanization. Presumed absent.
Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*)	CSSC	Medium high marsh 6-8 feet above sea level with abundant driftwood and pickleweed.	Potential habitat immediately adjacent to impact area. Presumed present in these areas.
State Protected Species or CNPS Species			
Congdon's tarplant (*Centromadia parryi* ssp. *condonii*)	CNPS 1B	Estuary margins in marshes and swamps, vernally mesic areas of valley and foothill grasslands, and vernal pools	Populations documented near the project site in 1998. Suitable habitat is present on site. Surveys are warranted.
Hairless popcorn flower (*Plagiobothrys glaber*)	CNPS 2	Alkaline meadows and coastal salt marshes and swamps.	Populations have historically been found in the vicinity of the project site. Suitable habitat is present on site. Surveys are warranted.
White-tailed Kite (*Elanus caeruleus*)	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat present on-site; probably breeds on or near site.
Ringtail (*Bassariscus astutus*)	SP	Prefers riparian and heavily wooded habitats near water.	No suitable habitat on-site. Site isolated from occupied habitat by urbanization. Presumed absent.

***SPECIAL-STATUS SPECIES CODE DESIGNATIONS**

FE =	Federally listed Endangered
FT =	Federally listed Threatened
SE =	State listed Endangered
SR=	State listed Rare
ST =	State listed Threatened
FC =	Federal Candidate. Sufficient biological information to support a proposal to list the species as Endangered or Threatened
CSSC =	California Species of Special Concern
SP =	State Protected Species
CNPS 1B =	Plants considered by CNPS to be rare, threatened, or endangered in California, and elsewhere
CNPS 2 =	Plants considered by CNPS to be rare, threatened, or endangered in California, but more common elsewhere
CNPS 3 =	Plants about which CNPS needs more information; a watch list
CNPS 4=	Plants of limited distribution; a watch list

winter or early spring after waters recede. Females attach eggs in a single cluster to a vegetation brace just under the surface of the water. The eggs hatch in just over a week and the resulting larvae feed on plant and animal material on the bottom of the pond. It takes at least four months for the larvae to metamorphose into juvenile frogs.

Although red-legged frogs are known to breed on upper Matadero Creek more than three miles upstream from the project site, this species is not expected to occur within the project area. The site is separated from suitable habitat by long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of the stream, which provide neither breeding habitat nor sufficient cover to enable a frog to disperse to the project site, and therefore the project site is isolated from red-legged frog populations. Furthermore, the abundance of predators in the project vicinity (such as raccoons, feral cats, bullfrogs, and fish), as well as the salinity in some parts of the project area are expected to preclude the survival and successful reproduction of any red-legged frogs. There are no recent red-legged frog records from immediate bayside areas in the vicinity of the project site. Furthermore, the species is thought to have been extirpated from the urbanized lowland areas of Santa Clara County and brackish marshlands bordering the San Francisco Bay (H.T. Harvey & Associates 1997).

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*). Federal listing status: Endangered; State listing status: Endangered. This species is found in wetland habitats, particularly marshy borders of lakes and ponds, on the northern San Francisco Peninsula. In these habitats it finds cover in dense wetland-obligate vegetation and feeds primarily on the California red-legged frog and Pacific treefrog. Populations of the San Francisco garter snake have declined as a result of habitat loss and population declines of its prey species, particularly the red-legged frog. Known populations of the San Francisco garter snake are very localized in distribution, and this subspecies' range is not known to extend south along the edge of the bay as far as Matadero Creek. Given the known range of this subspecies and the presence of potential barriers to dispersal (most notably Route 101 adjacent to the site), this species is presumed absent from the site.

California Clapper Rail (*Rallus longirostris obsoletus*). Federal listing status: Endangered; State listing status: Endangered. The California Clapper Rail is resident in tidal salt marshes in the vicinity of the San Francisco Bay. It nests from early March through August in the tallest vegetation along tidal sloughs, particularly in California cordgrass (*Spartina foliosa*) and marsh gumplant (*Grindelia stricta*). This species forages along the edges of tidal sloughs, foraging less frequently in shorter marsh vegetation, such as that dominated by pickleweed. Due to the loss of salt marsh habitat around the San Francisco Bay, populations of this species have declined considerably.

Fully tidal salt-marsh habitat is absent from the project site, and there is no cordgrass-dominated habitat on or immediately adjacent to the site. Gumplant is present along maintenance roads. Despite good coverage of lower Matadero Creek, the Emily Renzel wetlands, and the PAFB by recreational bird watchers, no Clapper Rails have been recorded in the immediate project vicinity. Therefore, this species is presumed absent from the site.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*). Federal listing status: Endangered; State listing status: Endangered. The salt marsh harvest mouse is found only in saline wetlands of San Francisco Bay and its tributaries. The southern subspecies (*R. r. raviventris*) is restricted to an area from San Mateo County and Alameda County along both sides of San Francisco Bay south to Santa Clara County. The salt marsh harvest mouse occurs with the closely related, ubiquitous, and abundant western harvest mouse (*R. megalotis*) at upper edges of marshes and in marginal areas. Both animals occur in pickleweed, but the salt marsh harvest mouse replaces the western harvest mouse in denser areas of pickleweed. The salt marsh harvest mouse has declined substantially in recent decades. This decline is due primarily to diking and filling of marshes, subsidence, and changes in salinity brought about by increasing volumes of fresh water discharge into the bay. Densely vegetated, tidal, saline marsh dominated by pickleweed is generally considered prime habitat for this species. Moderate populations of the salt marsh harvest mouse have also been found in diked marshes, and may be found in grassland habitats adjacent to pickleweed marshes, particularly during the spring. These grasslands are generally used by harvest mice only in the spring when new grass growth affords suitable cover and possibly forage. Salt marsh harvest mice may also use adjacent grasslands to avoid high tide events.

The salt marsh harvest mouse was detected in the PAFB in 1975 (Zetterquist 1978). No recent trapping surveys for salt marsh harvest mice have been conducted in the PAFB near the project site since that time. Dr. Howard Shellhammer assessed the project site in April 2002, noting that suitable habitat is present in the pickleweed-dominated areas adjacent to the project site. This pickleweed provides habitat for the salt marsh harvest mouse and is contiguous with large expanses of pickleweed habitat in the basin. Therefore, this species is presumed to be present in habitat immediately adjacent to the site. Current project design will avoid any direct impacts to pickleweed habitat, and implementation of a few simple avoidance measures (described in Section 5 below in *Potential Impacts to Salt Marsh Harvest Mice and Salt Marsh Wandering Shrews*) should preclude incidental take of salt marsh harvest mice.

Federal or State Candidate Species

Fall-run Chinook salmon (*Oncorhynchus tshawytscha*). Federal listing status: Candidate; State listing status: None. Like the steelhead rainbow trout, the Chinook salmon is an anadromous species. Adults typically spawn in beds of coarse river gravels. Juveniles migrate downstream to the ocean, where they mature. Chinook salmon did not spawn in South San Francisco Bay streams historically. However, in recent years, small numbers of fall-run Chinook salmon have been found spawning in several South San Francisco Bay streams, such as Coyote Creek, Los Gatos Creek, and the Guadalupe River. These fish are likely strays from Central Valley runs, and there is evidence that most are derived from hatchery stock released into Central Valley streams that have native chinook runs. According to the National Marine Fisheries Service (NMFS), South San Francisco Bay fall-run Chinook salmon are included in the Central Valley Fall and Late Fall-run Evolutionary Significant Unit (ESU; Laura Hamilton, pers. comm.). In March 1998, the NMFS proposed several chinook ESUs for protection under the Federal Endangered Species Act, but the Central Valley Fall and Late Fall-run ESU was designated only a Candidate for listing. Although some other Central Valley runs, such as the Sacramento River Winter-run ESU and the Central Valley Spring-run ESU, are federally listed as Threatened or Endangered, the Chinook salmon presumed to be present in South San Francisco Bay streams are fall-run fish. On rare occasions, adult chinook have been detected in South San Francisco Bay streams in summer. Seasonal streamflow and temperature conditions in South San Francisco Bay streams may not be suitable for successful spawning by Sacramento River Winter-run chinook, which typically spawn in late spring and summer, or by Central Valley Spring-run chinook, which typically spawn in late summer and early fall. Therefore, any adult chinook found in the South San Francisco Bay in summer is either an early fall-run fish or a stray from a Central Valley run that is not expected to spawn successfully in South San Francisco Bay streams.

No Chinook salmon are known or expected to spawn in Matadero Creek due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of this stream immediately upstream from the site. In addition, no suitable spawning habitat is present within the heavily sedimented reaches of this stream within the project area. However, it is possible that juvenile chinook from spawning sites elsewhere in the south San Francisco Bay area could enter the PAFB through the gates in the northeast corner of the basin (H.T. Harvey & Associates 2002a), and that such fish could, on rare occasion, occur in the lower reaches of Matadero Creek.

California Species of Special Concern and State Protected Species

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Federal listing status: None; State listing status: None; CNPS List 1B. This annual herb occurs in seasonally wet valley and foothill grasslands, particularly those with alkaline substrates, and in saline or alkaline marshes. The blooming period extends from June through November. The range of this species has been reduced to Alameda, Contra Costa, Monterey, San Luis Obispo, and Santa Clara counties. Historic populations were recorded in the vicinity of the project site, at Cooley Landing in Menlo Park and at the mouth of Steven's Creek in Mountain View (CNDDB 2001). Suitable habitat for Congdon's tarplant occurs on the project site and protocol-level surveys are recommended during its bloom period.

Hairless popcornflower (*Plagiobothrys glaber*). Federal listing status: None; State listing status: None; CNPS List 1A. This succulent annual was historically found in coastal salt marsh habitats, particularly along the southern shore of the San Francisco Bay, and in alkaline flats in valleys of Santa Clara County. The blooming period ranges from April to May. The last known population of the plant in this area was located northeast of the junction of Alvarado Boulevard and the Nimitz Freeway in Newark. This species is presumed extinct, by CNPS. Suitable habitat is present on the project site; surveys during the flowering period are warranted.

Western Pond Turtle (*Clemmys marmorata*). Federal listing status: None; State listing status: Species of Special Concern. The western pond turtle is a medium-sized brown or olive-colored aquatic turtle found west of the Sierra Nevada crest and deserts, and south to northern Baja California. Pond turtles are normally found in and along riparian areas, although gravid females have been reported up to a mile away from water in search of appropriate nest sites. The preferred habitat for these turtles includes ponds or slow-moving water with numerous basking sites (logs, rocks, etc.), food sources (plants, aquatic invertebrates, and carrion), and few predators (raccoons, introduced fishes, and bullfrogs). Juvenile and adult turtles are commonly seen basking in the sun at appropriate sites, although they are extremely wary animals and often dive into the water at any perception of danger. Pond turtles have been commonly observed moving long distances to reach isolated stock ponds and other aquatic habitats. During the summer, they may aestivate in leaf duff, well away from riparian areas. They have disappeared from a significant portion of their range due to habitat loss from agriculture, urbanization, water development projects, and the introduction of non-native aquatic predators (i.e. fishes and bullfrogs).

No known occurrences of western pond turtles occur along lower Matadero Creek or elsewhere in the project vicinity. Records do exist for the upper watershed. However, long reaches of the Matadero Creek channel are unvegetated, concrete-lined and culverted, which isolate the site from suitable habitat far upstream and prevent the occurrence of dispersants or flood event washdowns. Furthermore, successful breeding and persistence of a population on the site are likely precluded by the abundance of predators such as raccoons, feral cats, bullfrogs, and fish in the project vicinity.

White-tailed Kite (*Elanus caeruleus*). Federal listing status: None; State listing status: Protected. This species prefers habitats with low ground cover and variable tree growth. Kite nests are built near the tops of oaks, willows, or other dense broad-leafed deciduous trees in partially cleared or cultivated fields, grassy foothills, marsh, riparian, woodland, and savannah. Kites prey primarily on small rodents (especially the California vole), but also feed on birds, insects, reptiles, and amphibians. When prey is abundant, these birds may rear two broods in a single breeding season, and nesting activity may occur from early February to early September. White-tailed Kites breed annually in trees along lower Matadero Creek, and this species is expected to breed in riparian vegetation on or immediately adjacent to the project site.

Northern Harrier (*Circus cyaneus*). Federal listing status: None; State listing status: Species of Special Concern. The Northern Harrier is commonly found in open grasslands, agricultural areas and marshes. Nests are built on the ground in areas where long grasses provide cover and protection. In the San Francisco Bay area, these nests may be occupied from early February through July. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects by flying low and slow in a traversing manner utilizing both sight and sound to detect prey items. Although Northern Harriers nest in the PAFB, they are not expected to nest on the immediate project site, as they typically place their nests in the middle of broad expanses of herbaceous vegetation, not as close to the upland edge and to riparian habitat as the diked salt-marsh habitat that occurs on the project site. However, it is possible that an off-site harrier nest could be located close enough to project areas to be potentially impacted by project-related disturbance.

Cooper's Hawk (*Accipiter cooperii*). Federal listing status: None; State listing status: Species of Special Concern. The Cooper's Hawk is a medium-sized hawk that preys on a variety of bird species and occasionally takes small mammals and reptiles. Breeding pairs in California usually select nest sites within dense stands of live oak woodland, riparian habitats, or other wooded areas. However, pairs may also nest in sparsely wooded areas and, especially in recent decades, nesting pairs have been found breeding in suburban areas and parks in the San Francisco Bay area and elsewhere. Although this species is expected to occur on-site primarily during the nonbreeding season, the riparian habitat, and possibly the eucalyptus trees, along

Matadero Creek provide potentially suitable nesting sites, and this species is known to breed in Palo Alto not far upstream from the project site.

Burrowing Owl (*Athene cunicularia*). Federal listing status: None; State listing status: Species of Special Concern. The Burrowing Owl is a small, terrestrial owl that favors flat, open grassland or gentle slopes and sparse-shrubland ecosystems. These owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, Burrowing Owls are found in close association with California ground squirrels (*Spermophilus beecheyi*). Owls use the abandoned burrows of ground squirrels for shelter and nesting. Ground squirrels provide nesting and refuge burrows, and maintain short vegetation height, which provides visual protection from avian predators and foraging habitat. In the absence of ground squirrel populations, habitats soon become unsuitable for occupancy by owls. Burrowing Owls are semi-colonial nesters, and group size is one of the most significant factors contributing to site constancy by breeding Burrowing Owls. The nesting season, as recognized by the CDFG, runs from February 1 through August 31.

A few Burrowing Owls are known to occur on the closed portion of the Palo Alto landfill just northeast of the project site. However, habitat quality on the project site is marginal, at best, for this species, as the few areas having California ground squirrel burrows and relatively short vegetation (e.g., the ruderal habitats) are in close proximity to taller vegetation, and feral cats and other predators are common in the project area. Therefore, Burrowing Owls are unlikely to occur on the project site except possibly as rare dispersers.

Loggerhead Shrike (*Lanius ludovicianus*). Federal listing status: None; State Listing Status: Species of Special Concern. The Loggerhead Shrike is a predatory passerine that forages in grasslands or ruderal habitats for small reptiles, mammals, birds, and insects, and nests in small trees and shrubs. In approximately the last 20 years, populations of the Loggerhead Shrike in eastern North America have declined significantly. Although Loggerhead Shrikes are still considered a fairly common species in much of California, the piecemeal loss of grasslands has caused local declines in many areas, and the species as a whole is declining somewhat in the state. Loggerhead Shrikes are present on the project site, foraging in open ruderal, developed, and salt-marsh habitats and nesting in trees and shrubs.

California Yellow Warbler (*Dendroica petechia brewsteri*). Federal listing status: None; State listing status: Species of Special Concern. The number of breeding pairs of California Yellow Warblers has declined in many lowland areas to such an extent that the species has been designated a Species of Special Concern. This insectivore is primarily found in deciduous riparian habitats dominated by alders, cottonwoods, willows, and other small trees and shrubs. It builds a compact nest of weed stalks, shredded bark, and grass high up in a deciduous tree or shrub. Yellow Warblers migrate mostly to Central and South America in the fall and return to California to breed in April. They are common on the project site during migration. However, they are rare as breeders along the immediate edge of the south San Francisco Bay area, and breeding has not been confirmed in recent years along the project reach of Matadero Creek. Therefore, this species is expected to occur on the site only as a migrant.

Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*). Federal listing status: None; State listing status: Species of Special Concern. The Saltmarsh Common Yellowthroat inhabits emergent vegetation and breeds in fresh and brackish marshes in the San Francisco Bay Area. This subspecies (one of approximately 12 subspecies of Common Yellowthroat recognized in North America) breeds from mid-March through early August, and pairs frequently raise two clutches per year. Saltmarsh Common Yellowthroats have been found during the breeding season from Tomales Bay, Marin County, south to the Santa Clara-Santa Cruz county line. Other subspecies of Common Yellowthroat occur in the region during migration and winter (August-May). Because these subspecies cannot be reliably distinguished in the field, determination of the presence of Saltmarsh Common Yellowthroats can be achieved only by locating nests in the breeding range of this subspecies, or via the observation of Yellowthroats during the summer months when the Saltmarsh Yellowthroat is the only subspecies in the region. Although little is known regarding the movements of this taxon, the wintering area has been described as coastal salt marshes from the San Francisco Bay region to San Diego County (Grinnell and Miller 1944). Saltmarsh Common Yellowthroats are fairly common residents in the freshwater marsh habitat on the project site and in portions of the riparian habitat having dense herbaceous vegetation within or immediately adjacent to the woody riparian corridor.

Alameda Song Sparrow (*Melospiza melodia pusillula*). Federal listing status: None; State Listing Status: Species of Special Concern. The Alameda Song Sparrow is one of three subspecies of Song Sparrow breeding only in salt marsh habitats in the San Francisco Bay area. This subspecies is found in marshes bordering the South San Francisco Bay. Here it is most abundant in the taller vegetation found along tidal sloughs, including salt marsh cordgrass and marsh gumplant, nesting from early March to mid-August. Although it is occasionally found in bulrushes in brackish marshes, the Alameda Song Sparrow is very sedentary and is not known to disperse upstream into freshwater habitats. Populations of the Alameda Song Sparrow have declined due to the loss of salt marshes around the bay, although within suitable habitat it is still fairly common.

Song Sparrows are fairly common residents in the freshwater marsh and riparian habitats on the project site, although the racial identity of the Song Sparrows on the project site is unknown. The location of the interface between populations of the Alameda Song Sparrow and those of the race breeding in freshwater riparian habitats (*M. m. gouldii*) in the vicinity of the project area is not well known due to difficulties in distinguishing individuals of these two races in the field. Conclusive identification of individual Song Sparrows as *M. m. pusillula* (rather than the widespread upland race *M. m. gouldii*) is not possible unless the birds are examined in the hand. Therefore, the Song Sparrows present on the site should be considered to represent *M. m. pusillula* unless they can be examined in the hand.

Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*). Federal listing status: None; State listing status: Species of Special Concern. The salt marsh wandering shrew inhabits marsh 1-8 feet above sea level where abundant driftwood and pickleweed exist. It seems to prefer the moister portions of pickleweed marshes, avoiding higher, drier areas. The distribution of this species in the vicinity of the project site is likely similar to that of the salt marsh harvest mouse, and the pickleweed habitat at the southeastern corner of the project site provides suitable habitat for this species. Therefore, the salt marsh wandering shrew could potentially be present on the site.

2.0 GOAL OF MITIGATION

2.1 INTRODUCTION

The goal of this mitigation is to fully compensate for all biotic impacts to USACE jurisdictional areas (freshwater wetlands) and CDFG jurisdictional areas (riparian habitat) resulting from construction of the Matadero Creek Flood Bypass Channel downstream of Route 101. No mitigation is required for construction activities upstream of Route 101. Proposed mitigation for impacts to USACE jurisdictional areas consists of creating new wetlands on-site (Figure 4). Proposed mitigation for impacts to CDFG jurisdictional areas include creating new riparian habitat on-site, and off-site at the East Bayshore Road Mitigation Site (see below and Figures 4 and 5). Furthermore, proposed riparian and wetland habitat mitigation includes removing non-native vegetation on-site.

The project area will be revegetated with native riparian and wetland species as part of the habitat mitigation requirements. While mitigation of project impacts on-site is preferable, there is not enough suitable area for on-site mitigation. Therefore, any deficiencies in the mitigation requirements on-site will be addressed off-site at the East Bayshore Road Mitigation Site (Figures 1 and 5).

The District's Matadero/Barron Creeks Long-Term Remediation Project's mitigation plan has the following objectives:

- Mitigate all impacts to CDFG and USACE jurisdictional habitats resulting from project construction;
- Mitigate for riparian habitat impacts in-kind by increasing the amount of riparian habitat along San Francisco Bay (i.e., within a similar geomorphic setting); and,
- Help eradicate noxious and invasive non-native species (e.g., giant reed, castor bean (*Ricinus communis*), peppergrass (*Lepidium latifolium*), German ivy, fennel and periwinkle) from the Matadero Creek riparian corridor, upland areas adjacent to the MSC and levee road, within the constructed bypass channel and mitigation sites, and prevent their recolonization.

To mitigate project impacts, 0.28 acres of USACE jurisdictional area will be created on-site and 2.46 acres of CDFG jurisdictional area will be created or restored both on and off-site (Table 3, Figure 1).

Table 3. Summary of the Mitigation Package (all units are in acres).

Regulated Habitat	Proposed Mitigation	On-site Mitigation	Off-site Mitigation	Total Mitigation
Willow Riparian (CDFG)	2.46	1.82	0.64	2.46
Freshwater Marsh (USACE)	0.28	0.28	0.00	0.28

Figure 4. Proposed On-Site Mitigation.

Figure 5. Proposed Habitats at the East Bayshore Road Mitigation Site.

Mitigation on-site includes creating and enhancing USACE jurisdictional wetlands and creating and enhancing CDFG jurisdictional riparian areas (Figure 4). The creation of jurisdictional areas will include removing fills down to design grades, amending existing soils, and planting native species. Furthermore, mitigation efforts will include approximately 0.80 acres of non-native species eradication from jurisdictional habitats within the project area on-site. Non-native species eradication may also occur at San Francisquito Creek on the inboard side of the levee. Following non-native plant species eradication, the sites will be revegetated using native riparian plant species. All invasive, non-native plant species eradication areas are included as mitigation for project impacts. The project will have the additional positive benefit of providing historical seasonal flood flows to the adjacent portions of the PAFB; this hydrologic throughput over time should enhance the present vegetation in all habitat types.

2.2 TYPES, FUNCTIONS, AND VALUES OF HABITAT TO BE CREATED

2.2.1 On-Site Mitigation [Municipal Services Center (MSC) Mitigation Site]

Riparian Woodland. Because of its extensive wildlife use, the riparian woodland along Matadero Creek is considered high-quality habitat. This project aims to protect this reach of riparian corridor from present and future flood control maintenance through the construction of a flood control bypass channel. This channel will eliminate the need for dredging or channel widening downstream of Route 101. The channel's design incorporated input from ecologists to minimize impacts to sensitive habitats.

As part of the project's mitigation, the District proposes to improve this habitat by removing invasive non-native plants. Portions of the Matadero Creek corridor downstream of Route 101 contain some non-native plant species that detract from its structure, limit the growth of native plants, and reduce habitat value to wildlife. Mitigation measures for Matadero Creek will provide more continuous and structurally diverse riparian woodlands that will greatly improve the site, both floristically and as wildlife habitat, and will not be disturbed by future flood control maintenance.

Vegetation. The structure of some of the riparian woodlands, consisting of an herbaceous and shrub understory layer, and an overstory canopy of trees, provides high-quality habitat for wildlife and contributes significantly to maintaining streambank stabilization by reducing erosion. Containment of channel banks also greatly reduces nutrient losses from the system. Plantings in these habitats will include cuttings of arroyo and shining willow, and California blackberry in the willow riparian mitigation areas, and coast live oak, blue elderberry, box elder, common snowberry, and California blackberry in the mixed riparian habitat.

Wildlife. Riparian woodlands represent some of the most important wildlife habitats due to their high floristic and structural diversity, high biomass (and therefore high food abundance), and high water availability. In addition to providing breeding, foraging, and roosting habitat for a diverse array of animals, riparian woodlands typically constitute important movement corridors for both resident and migratory wildlife, connecting a variety of habitats throughout a region. They are used by some raptors for nesting and roosting, even where other habitats are used for foraging (e.g., grasslands).

Riparian areas of greatest value to wildlife are floristically and structurally diverse. Currently, the wildlife habitat value of the willow riparian vegetation on-site is somewhat limited by its proximity to Route 101 and the MSC, its young age, and a lack of more mature riparian vegetation nearby. The proposed mitigation measures, however, will increase the size and improve the integrity of the habitat, making the area attractive to a greater diversity of riparian species. The increased size of the habitats will also make it more likely that these species will remain on the site to breed as well as forage. In addition, the value of the riparian woodland habitat as a movement corridor will be increased due to the greater degree of cover and foraging habitat it will provide.

Freshwater and Salt Marsh (Wetlands). This project aims to protect as much of the existing habitats as possible from future flood control maintenance by careful design and construction of the proposed bypass channel. The freshwater marshes adjacent to the proposed alignment of the bypass channel are comprised of a mixture of species and their habitat quality varies. Some areas contain invasive species such as periwinkle, German ivy, and peppergrass.

The salt marshes adjacent to the project area are within the PAFB and as such are considered diked marshes. Although they contain mostly high quality marsh habitat, portions (especially in the vicinity of the project area) appear stressed. For example, the pickleweed in the vicinity of the project area is sparse and short (under 6 inches in height and patchy) instead of its usual dense stature (over 1 foot in height and continuous). The salt marshes do become periodically inundated during winter storms when the PAFB fills with stormwater. Invasive non-native species such as peppergrass are present in the diked marsh of the project area.

Both the mitigation and existing wetlands are expected to be of higher quality due to the creation of new wetland area, non-native plant species eradication, and increased freshwater input from the bypass channel. They will also provide added water quality benefits to the PAFB.

Vegetation. Along the reach of the flood control bypass channel where the current levee will be removed the wetland habitat created will include freshwater marsh furthest from the PAFB and salt marsh nearer the PAFB where salinities would preclude the creation of freshwater marsh. Freshwater marsh species that will easily colonize the areas include species currently present on site, predominantly cattail (*Typha* sp.). Where the habitat transitions to more saline conditions, natural recruitment of species such as pickleweed is expected to rapidly occur.

Wildlife. Freshwater marshes are highly productive habitats and these marshes will provide potential habitat for several species of reptiles and amphibians including the racer, common garter snake, western toad, and Pacific treefrog. In addition, numerous birds, including some special status species such as the northern Harrier, Saltmarsh Common Yellowthroat, and Alameda Song Sparrow, use freshwater marsh for both breeding and foraging.

Salt marshes are among the most productive ecosystems on the planet; salt marsh-associated species may use the created habitat, including the salt marsh harvest mouse and salt marsh wandering shrew. Salt marsh harvest mice are extremely dependent on thick perennial cover of pickleweed in marshes of the San Francisco Bay (Fisler 1965, Shellhammer 1982). The salt marsh harvest mouse is most abundant in deep (12-20 inches), dense pickleweed in salt marshes that provide non-submerged escape cover during high winter tides (Shellhammer et al. 1982). Pickleweed provides more horizontal branches (and therefore more cover) than other halophytic species. The project design has avoided any impact to primary salt marsh harvest mouse habitat, and implementation of the proposed project does not result in substantial changes to the hydrologic conditions in the PAFB. Therefore, no changes to the salt marsh habitat are expected as a result of the project.

In addition, the mitigation area will provide foraging habitat for numerous species of raptors (including the Loggerhead Shrike) on prey species such as the western fence lizard, racer, and gopher snake.

2.2.2 Off-Site Mitigation (East Bayshore Road Mitigation)

Oak woodland/mixed riparian habitat creation will be implemented adjacent to San Francisquito Creek at the East Bayshore Road Mitigation Site. The site is in a very similar geomorphic setting to the impact site, in that this reach of San Francisquito Creek is immediately downstream of Route 101 in an area that is tidally influenced by San Francisco Bay. The site currently supports a mixture of native and non-native tree species along the existing levee. Those trees on the creek side of the levee fall under the jurisdiction of the CDFG. The mitigation site will occur in an area, as at the impact site, that represents the most downstream extent of riparian habitat. The influence of saline waters from the tides begins to preclude woody vegetation as you move further downstream from the mitigation site. For this reason, the replacement of riparian habitat in this geomorphic setting constitutes the closest in-kind mitigation available off-site. Although San Franciscquito Creek at this location is slightly more saline than the Matadero Creek impact area (pers. comm., Gale Rankin), the mitigation site itself is on a high flood terrace that will only be receiving water from the creek channel during flood events, and therefore the water will be fresh. No tidal flows or more dense saline waters are expected to enter the site. Soils borings performed by Mark Thomas and Company in September 2002, show that the depth to groundwater at the site was approximately 19 feet below the existing grade. Groundwater levels are close enough to the soil surface to support the proposed plant species, as further evidenced by the existing landscaping and orchard trees on the site.

The mitigation site is in the historical floodplain of the creek and is currently being leased from the District by a landscape contractor business. Although the site is behind the present levee, the 100-year flood currently tops this levee. A levee maintenance project was completed in 2002, but will still not remove the surrounding areas from the 100-year floodplain. To accommodate the proposed mitigation, the site will be cleared and prepared for riparian plantings, which will eventually establish a contiguous canopy with the existing canopy on the outboard side of the existing levee at maturity.

The District has long-term plans to implement a project to alleviate flooding on San Francisquito Creek. The mitigation design has left space for any future flood control work (Figure 5). However, the flood-control project has not been designed and will not be constructed for approximately 10-15 years. Therefore, the mitigation site design has incorporated flexibility to allow for various flood improvement needs. If a floodwall or levee was eventually constructed behind the mitigation site as part of the long-term project, the District could then remove or gap the current levee, allowing more frequent storm events on San Francisquito Creek to regularly flood the mitigation site in increase its value.

Please note that any non-native species removal and/or long-term flood control projects that the District likely implements would further improve the quality of the site. However, without any of this other work the mitigation site should still be viable and eventually develop a continuous canopy with the existing woody vegetation on San Francisquito Creek.

Additional grading activities to enhance topographic variability within the project site itself will lead to increased habitat complexity and value. The final design grade of the mitigation site should gently slope towards the creek (see Section 4.6.2) in order to reduce the potential of ponding on-site from incidental rainfall or potential future District work in the area. The types, functions, and values of the new habitat to be created are described below.

Riparian Woodland. The riparian woodland habitat along San Francisquito Creek levee is currently narrow and of poor quality. Although portions of this alignment contain some native riparian species and provide good structure, the majority of this habitat is comprised of a variety of ruderal and non-native species and is variable in overall structure. The riparian plantings will provide broader and more structurally diverse riparian woodlands along San Francisquito Creek.

Vegetation. The structure of riparian woodlands, consisting of an understory (herbaceous and shrub) layer, and an overstory canopy of trees, provides high-quality habitat for wildlife. Plantings in this habitat includes coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), California buckeye, box elder, blue elderberry, California coffeeberry (*Rhamnus californica*), coyote brush (*Baccharis pilularis*), common snowberry (*Symphoricarpos albus* var. *laevigatus*), and California blackberry.

Wildlife. The general values of riparian areas to wildlife have been discussed in Section 2.2.1. Riparian areas of greatest value to wildlife are floristically and structurally diverse. The value of the riparian woodlands at the off-site mitigation area is currently limited due to its narrowness and the predominance of immature non-native tree species.

The planned mitigation measures will increase the diversity and size of the habitat making the area attractive to a greater diversity of riparian species. The increased size of the habitat will also make it more likely that these species will remain on the site to breed as well as forage. In addition, the value of the riparian woodland habitat as a movement corridor will be increased due to the increased cover and foraging habitat it will provide.

2.3 TIME SCHEDULE

The mitigation project will begin providing wetland habitat functions and values during the first growing season. By the end of the wetland monitoring period (Year 5), the created wetland should be jurisdictional, established, and self-sustaining. The riparian habitat plantings will be well on their way toward long-term establishment within 10 years of construction. However, the riparian habitat will not begin to fully mature until 25 or more years after installation.

The removal of non-native species and the restoration of riparian and wetland habitats in these areas will begin following the construction period. For those areas where mechanical removal of non-natives can occur, riparian vegetation will be planted within a year of on-site mitigation construction. For areas in which manual removal and/or spraying of non-natives will occur, it may take two or three years of repeated treatment to ensure that the non-native vegetation has been successfully eradicated prior to revegetation activities.

3.0 PROPOSED MITIGATION SITES

3.1 LOCATIONS OF MITIGATION SITES

Two locations are proposed to mitigate for all of the project's biotic impacts: on-site surrounding the proposed bypass channel and off-site at the East Bayshore Road Mitigation (Figure 1). Both sites are located on land owned by the District and are situated along Matadero and San Francisquito Creeks, immediately downstream of Route 101.

3.1.1 On-Site Mitigation

The on-site mitigation is located between Matadero Creek, the PAFB and the MSC immediately to the east of Route 101 within the PAFB on the District's easement (Figure 4). This mitigation site will contain approximately 0.28 acres of USACE jurisdictional area and 1.82 acres of CDFG jurisdictional area.

3.1.2 Off-Site Mitigation

Search for off-site mitigation location(s) began in 1999, and numerous potential mitigation sites were examined and several discarded for a variety of constraints (e.g., too distant from impact site, existing Right-of-Way (ROW) easements, flooding concerns). In July 2001, H.T. Harvey & Associates prepared a preliminary assessment of possible off-site mitigation locations for the District. The report discusses all of the feasible mitigation sites, or potential mitigation sites already owned by the District. This limited the total number of potential mitigation sites to the twelve analyzed in the attached report.

We concluded that the East Bayshore Road Mitigation Site adjacent to San Francisquito Creek was the best option for off-site mitigation from a biological standpoint. Although not on Matadero Creek, it is located very close to the impact site and it constitutes the only site that provides truly in-kind mitigation from a geomorphic standpoint. Its location is very similar to the impact area on Matadero Creek, in that this reach of San Francisquito Creek is immediately downstream of Route 101 in an area that is tidally influenced by San Francisco Bay. The mitigation site is in the historic floodplain of the creek and is currently being leased from the District by a landscape contractor business. Although the site is behind the present levee, the 100-year flood currently tops this levee.

The East Bayshore Road Mitigation Site is located along San Francisquito Creek immediately to the east of Route 101 adjacent to Laura Lane (Figure 1). This site is approximately 1 mile north of the impact site downstream of Route 101 (Figure 5) on lands owned by the District. This mitigation site will contain approximately 0.64 acres of CDFG jurisdictional area.

3.2 EXISTING FUNCTIONS AND VALUES OF THE MITIGATION SITES

3.2.1 On-Site Mitigation

The project area downstream of Route 101 contains approximately 1,000 linear feet of Matadero Creek and its associated willow-dominated riparian corridor. Open space to the north and east, and developed areas to the south and west, are the dominant land uses surrounding the mitigation area. The stretch of Matadero Creek downstream of Route 101 is immediately adjacent to the PAFB, a hydrologically-controlled muted-tidal salt marsh area, with an approximate marsh plain elevation of 5 feet National Geodetic Vertical Datum (NGVD) (SCVWD 2001).

Soils in the immediate vicinity of Matadero Creek are fill material (silty clay varying in percent sand and gravel) overlying Alviso Clay (An) a native alluvium consisting of alternating layers of stiff to very stiff silty clay, medium-to-dense sand, medium-to-dense clayey sand, and medium to very dense gravelly sand and Tidal Marsh areas (Tf) that are typically Alviso Clays submerged under water from San Francisco Bay (SCVWD 2001).

Present habitats at the on-site mitigation areas consist of coyote brush scrub, ruderal habitat, or habitats to be disturbed by project construction activities (i.e., temporary impacts).

3.2.2 Off-Site Mitigation

The East Bayshore Road Mitigation Site is located immediately adjacent to San Francisquito Creek just downstream of Route 101. This mitigation site was chosen because it is in the same geomorphic setting as the impact site on Matadero Creek (Figure 1). The East Bayshore Road Mitigation Site is a mosaic of upland, riparian, and aquatic habitats associated with San Francisquito Creek (Figure 3). Upland habitats consist mainly of developed areas interspersed with non-native grasses and landscaped areas, although along the creek levee there is approximately 0.4 acres of mixed riparian woodland, infested with cape ivy, and some patches of coyote brush scrub. The mixed riparian habitat is generally a combination of mature native and non-native woody species.

The project site is underlain by Mocho loam (Mg), which occurs on nearly level alluvial plains with less than 2% average slope. This series is moderately well drained and generally of high fertility (SCS 1968). The natural soils are likely overlain by compacted fill material associated with the current development. The East Bayshore Road Mitigation Site is generally flat. However, there is a sharp drop in elevation from the levee, at approximately 15 ft. NGVD, into the creek (at approximately 3 feet NGVD) and a moderate drop in elevation from the levee inland (at approximately 10 feet NGVD).

Mitigation activities are expected to occur only in the coyote brush scrub, landscaped/ornamental, ruderal, and developed habitats.

3.0 PROPOSED MITIGATION SITES

3.1 LOCATIONS OF MITIGATION SITES

Two locations are proposed to mitigate for all of the project's biotic impacts: on-site surrounding the proposed bypass channel and off-site at the East Bayshore Road Mitigation (Figure 1). Both sites are located on land owned by the District and are situated along Matadero and San Francisquito Creeks, immediately downstream of Route 101.

3.1.1 On-Site Mitigation

The on-site mitigation is located between Matadero Creek, the PAFB and the MSC immediately to the east of Route 101 within the PAFB on the District's easement (Figure 4). This mitigation site will contain approximately 0.28 acres of USACE jurisdictional area and 1.82 acres of CDFG jurisdictional area.

3.1.2 Off-Site Mitigation

Search for off-site mitigation location(s) began in 1999, and numerous potential mitigation sites were examined and several discarded for a variety of constraints (e.g., too distant from impact site, existing Right-of-Way (ROW) easements, flooding concerns). In July 2001, H.T. Harvey & Associates prepared a preliminary assessment of possible off-site mitigation locations for the District. The report discusses all of the feasible mitigation sites, or potential mitigation sites already owned by the District. This limited the total number of potential mitigation sites to the twelve analyzed in the attached report.

We concluded that the East Bayshore Road Mitigation Site adjacent to San Francisquito Creek was the best option for off-site mitigation from a biological standpoint. Although not on Matadero Creek, it is located very close to the impact site and it constitutes the only site that provides truly in-kind mitigation from a geomorphic standpoint. Its location is very similar to the impact area on Matadero Creek, in that this reach of San Francisquito Creek is immediately downstream of Route 101 in an area that is tidally influenced by San Francisco Bay. The mitigation site is in the historic floodplain of the creek and is currently being leased from the District by a landscape contractor business. Although the site is behind the present levee, the 100-year flood currently tops this levee.

The East Bayshore Road Mitigation Site is located along San Francisquito Creek immediately to the east of Route 101 adjacent to Laura Lane (Figure 1). This site is approximately 1 mile north of the impact site downstream of Route 101 (Figure 5) on lands owned by the District. This mitigation site will contain approximately 0.64 acres of CDFG jurisdictional area.

3.2 EXISTING FUNCTIONS AND VALUES OF THE MITIGATION SITES

3.2.1 On-Site Mitigation

The project area downstream of Route 101 contains approximately 1,000 linear feet of Matadero Creek and its associated willow-dominated riparian corridor. Open space to the north and east, and developed areas to the south and west, are the dominant land uses surrounding the mitigation area. The stretch of Matadero Creek downstream of Route 101 is immediately adjacent to the PAFB, a hydrologically-controlled muted-tidal salt marsh area, with an approximate marsh plain elevation of 5 feet National Geodetic Vertical Datum (NGVD) (SCVWD 2001).

Soils in the immediate vicinity of Matadero Creek are fill material (silty clay varying in percent sand and gravel) overlying Alviso Clay (An) a native alluvium consisting of alternating layers of stiff to very stiff silty clay, medium-to-dense sand, medium-to-dense clayey sand, and medium to very dense gravelly sand and Tidal Marsh areas (Tf) that are typically Alviso Clays submerged under water from San Francisco Bay (SCVWD 2001).

Present habitats at the on-site mitigation areas consist of coyote brush scrub, ruderal habitat, or habitats to be disturbed by project construction activities (i.e., temporary impacts).

3.2.2 Off-Site Mitigation

The East Bayshore Road Mitigation Site is located immediately adjacent to San Francisquito Creek just downstream of Route 101. This mitigation site was chosen because it is in the same geomorphic setting as the impact site on Matadero Creek (Figure 1). The East Bayshore Road Mitigation Site is a mosaic of upland, riparian, and aquatic habitats associated with San Francisquito Creek (Figure 3). Upland habitats consist mainly of developed areas interspersed with non-native grasses and landscaped areas, although along the creek levee there is approximately 0.4 acres of mixed riparian woodland, infested with cape ivy, and some patches of coyote brush scrub. The mixed riparian habitat is generally a combination of mature native and non-native woody species.

The project site is underlain by Mocho loam (Mg), which occurs on nearly level alluvial plains with less than 2% average slope. This series is moderately well drained and generally of high fertility (SCS 1968). The natural soils are likely overlain by compacted fill material associated with the current development. The East Bayshore Road Mitigation Site is generally flat. However, there is a sharp drop in elevation from the levee, at approximately 15 ft. NGVD, into the creek (at approximately 3 feet NGVD) and a moderate drop in elevation from the levee inland (at approximately 10 feet NGVD).

Mitigation activities are expected to occur only in the coyote brush scrub, landscaped/ornamental, ruderal, and developed habitats.

3.3 SPECIAL-STATUS SPECIES AT MITIGATION SITES

3.3.1 On-site Mitigation Area Special-Status Plant and Animal Species

No special-status species are expected to occur in the on-site mitigation area other than those listed in Table 2.

3.3.2 Off-site Mitigation Area Special-Status Plant and Animal Species

Reconnaissance-level field surveys were conducted on December 6, 2001 within the East Bayshore Road mitigation area for habitats capable of supporting special-status plants by H. T. Harvey & Associates' botanist Kurt Flaig, M.S. Congdon's tarplant is the only special-status plant species expected to occur at the East Bayshore Road Mitigation Site (Table 2). No additional special-status species are expected to occur at the off-site mitigation area with one exception, steelhead trout.

Steelhead Trout. Federal listing status: Threatened; State listing status: Species of Special Concern. Steelhead are known to occur in San Francisquito Creek (Anderson 1995, Stanford University Natural Resources Inventory 2001) and thus may occur adjacent to the proposed East Bayshore Road Mitigation Site when migrating to and from upstream spawning grounds. However, no activity will take place in San Francisquito Creek, or within its existing levee, as part of this mitigation plan. Therefore, no impacts are expected to occur to this species.

3.4 PRESENT AND PROPOSED USES OF MITIGATION SITES AND ADJACENT AREAS

On-Site Mitigation. The on-site mitigation includes a conversion of ruderal and developed habitats to jurisdictional wetlands and willow-riparian habitat. Areas temporarily impacted by construction activities will also be restored. Although there is no official pedestrian path, the area appears to be occasionally used by pedestrians.

Off-Site Mitigation. The East Bayshore Road Mitigation Site will convert ruderal, landscaped, and developed habitats to mixed riparian forest. A landscaping contractor business currently occupies the site and public access occurs via the District's maintenance road the San Francisquito Creek levee. Both the landscape contractor business and public access will be removed as part of the mitigation implementation.

4.0 IMPLEMENTATION PLAN

4.1 IMPLEMENTATION SUCCESS

The proposed mitigation project has a high probability of success. Factors that contribute to the likelihood of the mitigation sites' success include: the mitigation sites placement in areas suitable for habitat creation, the commitment to implementation and long-term monitoring and maintenance by the District, and the mitigation designers' experience in the field of habitat creation and restoration. Furthermore, the construction, maintenance, and monitoring of the mitigation sites will be supervised by a qualified biologist.

4.2 RESPONSIBLE PARTIES

The District will fund the habitat creation and restoration at the mitigation sites. The District will be responsible for the construction, monitoring, and maintenance of the mitigation areas until the resource agencies have confirmed, at the end of the monitoring periods, that the mitigation is successful.

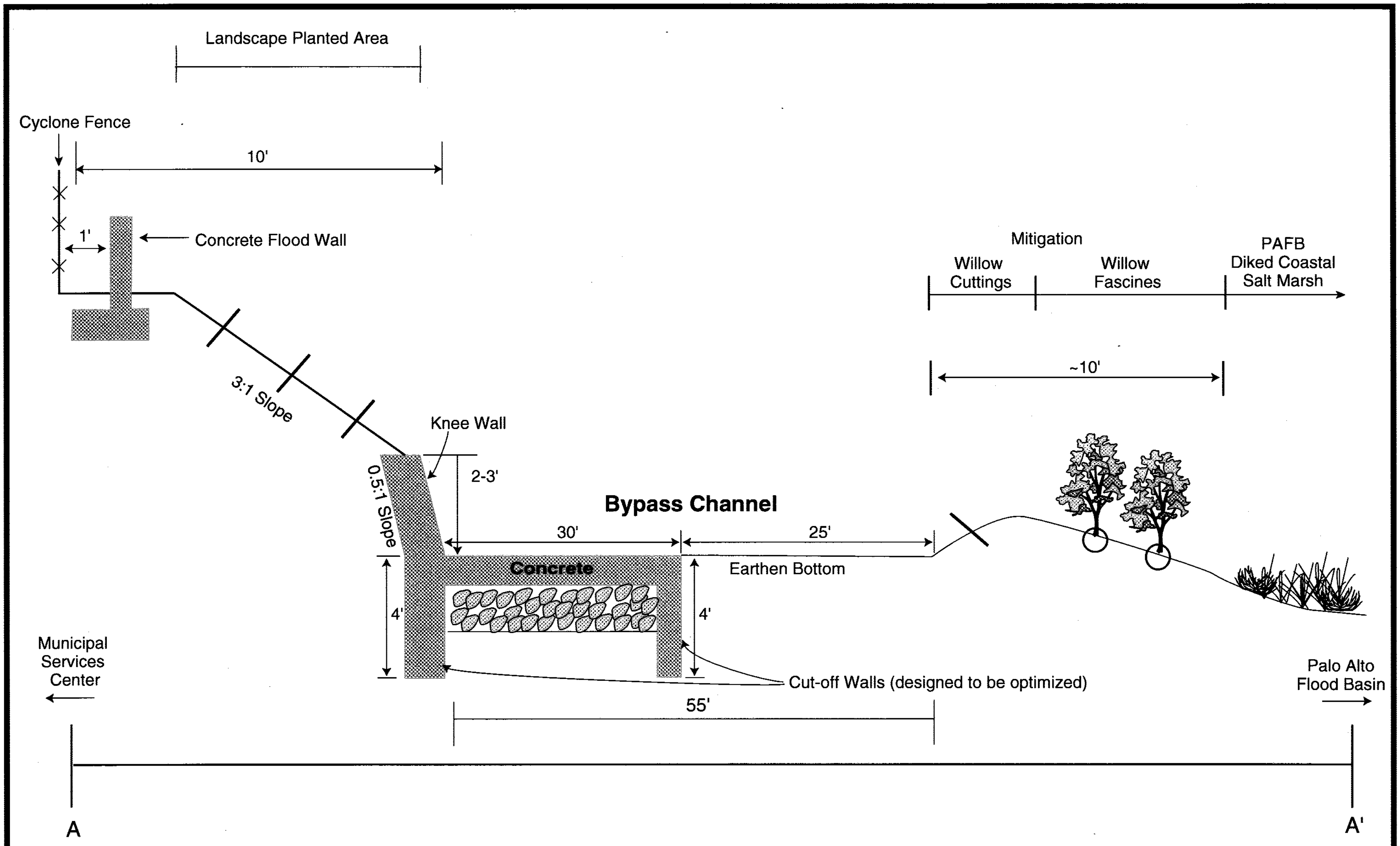
4.3 SITE PREPARATION

During implementation of the mitigation plan, care will be taken to avoid disturbing jurisdictional areas and native vegetation outside the construction zone. These areas will be clearly marked by construction fencing ("ecologically sensitive area" (ESA) zones) or tree and shrub tags. As it may be necessary to denude and/or grade much of the site, silt fencing should be installed and maintained along the creek bank or in any area where sediment could enter Matadero or San Francisquito Creeks.

It is highly recommend that site grading include plans for potential future hydrologic conditions, in which flood flows could periodically inundate the site (Figure 7). Although riparian habitat benefits from episodic flood events, some riparian species cannot tolerate prolonged flooding. Therefore, it is essential that site grading prevent the possibility of prolonged ponding under both existing and future hydrologic conditions (see Section 4.6.2 for more detail).

4.3.1 Non-native Species Eradication

Although several non-native plant species exist on the site, we recommend the removal, throughout the site, of only the highly invasive species listed below. Eradications will take place within existing riparian and wetland habitats on-site on either side of Matadero Creek within the reach of the project and between the bypass channel and the PAFB. Non-native, invasive plant species eradication will also be necessary within upland areas adjacent to the MSC, along the levee road and in the bottom of the bypass channel. Removal of the non-native tree species on site, especially of the large eucalyptus, would prove difficult and may cause unnecessary damage to the large native trees located on the site. The one tree to be removed will be the palm tree



To protect wetlands adjacent to the channel, a low 4 foot wide rock rip-rap mound (wall) will be placed from Station 17+40 to 18+20 and from Station 18+90 to 19+20.

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Figure **6**

(*Washingtonia* sp.) located near the bypass channel access road on the southeast side of the project area. Below is a brief description of the recommended removal techniques for each of the target species.

Giant Reed. Several patches of giant reed are located between the Matadero Creek channel and the MSC (see "Area of Enhancements" on Figure 4). Although the seeds of this invasive non-native plant are infertile in this region, giant reed readily spreads via pieces of stem and/or rhizomes breaking off and re-establishing vegetatively further downstream. For this reason, extreme care must be taken during removal efforts so that no stray pieces of giant reed are allowed to remain on site or be washed away by the creek.

Mechanical removal of some of these patches of giant reed will occur during site construction due to their location within the footprint of construction activity. Any additional adjacent areas of giant reed that can easily be removed via heavy equipment should be done under the supervision of a qualified person. During mechanical removal of giant reed, it is important to ensure that the entire root mass is extricated, and that extreme care is taken to avoid spreading the shoots or rhizomes throughout the riparian corridor.

Manual removal of giant reed and stem application of herbicides will be necessary in areas where sensitive wetland and riparian habitats could be impacted by heavy equipment. This treatment entails cutting the stems of giant reed approximately 1-2 feet above the existing grade (with hand tools or chainsaws), and immediately applying concentrated herbicide (such as AquaMaster) directly to the cut stems. This method is most effective post-flowering (usually mid-August) when the plants are active in translocation of nutrients to the root mass.

Extensive cleaning and raking must accompany the removal of giant reed, as new plants can re-sprout from cut material. Sediment retention fencing can be utilized to help ensure that no stray fragments of giant reed are dispersed accidentally into the creek. All stems must be hauled off site and disposed of properly. These methods may require multiple years of treatment to ensure that the root mass is dead. Treatment in subsequent years will take place in late summer and will entail foliar re-application of herbicides.

Ivy and Periwinkle. Both German ivy and greater periwinkle are pervasive throughout the Matadero Creek riparian corridor downstream of Route 101 as groundcover, and will require considerable effort to eradicate. An extensive manual removal effort will require care to avoid impacting other riparian plants. Initial removal should be via a combination of hand pulling and a trimmer, as the slope and/or adjacent vegetation permits. The use of a mechanical, hand-held trimmer is preferable (except in areas adjacent to native herbaceous and small woody vegetation) so that the physical root structures remain in place to help prevent any erosion of exposed soils into the creek. The physical removal should be followed immediately by treatment of the area with herbicide (AquaMaster). This method will require subsequent spot treatments (physical removal and re-application of herbicides) throughout the first year to ensure eradication of these species.

Peppergrass and Fennel. Peppergrass and fennel are quite common along the perimeter of the levee adjacent to the bypass, along the edge of the MSC and within the riparian corridor of

Matadero Creek. Herbicide (AquaMaster) application during the growing season (June – August) is recommended to remove these invasive plant species. Multiple years of application will be required to complete the eradication.

Castor Bean. The infestation was only noted for one small area on-site. Seeds germinate readily during the summer and on dry land, one significant spring/summer rainfall event is all that is needed for germination. It is at this juvenile stage that control is best undertaken.

Manual removal, plucking the seedlings by hand, although somewhat labor intensive, is the best approach. With larger areas, herbicides may be used but the impact of herbicides may not be able to be restricted to the target species and may kill other desirable plants and destabilize vegetation in the target area.

Himalayan Blackberry. Mechanical removal may be the most effective way of removing the mature plants. All below ground plant material must be removed for control to be effective. The application of herbicides is not recommended because it may promote vegetative growth from lateral roots. Himalayan blackberry re-establishment may be prevented by planting faster-growing native shrubs and trees, since the species is usually intolerant of shade.

Trees. Select non-native trees will be identified and clearly marked by a qualified person for removal or girdling. Where applicable (as determined by the biologist), trees should be girdled and left as standing snags to increase habitat complexity. Girdling will be performed with a chain saw, with the cut being made a breast height and immediately (within 5 minutes) followed with an herbicide application to the cut.

4.3.2 Site Preparation

All riparian, wetland, and aquatic habitat to be preserved at the sites will be protected with construction fencing and silt fencing installed prior to construction activities. Non-native and/or orchard trees (as identified and clearly marked by a qualified biologist) located at the East Bayshore Road Mitigation Site should be girdled and left as standing snags.

4.4 MITIGATION SITE CONSTRUCTION SCHEDULE

Construction of the on-site mitigation area is expected to begin in late 2004. Construction activities at the East Bayshore Road Mitigation Site are expected to begin in late 2004 or summer 2005.

4.5 SOIL AMENDMENTS

The design-grade soils at the mitigation sites may not be ideal for riparian and/or wetland habitat creation. Possible shortcomings include poor organic content, hazardous materials and over-compacted soils. Soils at the on-site mitigation area were tested and should not require further hazardous materials studies. However on-site soils may be over-compacted (or will be following bypass channel construction) and require over-excavation and backfilling with suitable material or mechanical loosening at design grade. Soils may not have suitable soil texture to facilitate drainage and may require amendment. Soils may also require organic amendments to increase fertility or inorganic amendment to buffer ion toxicity related to saltwater intrusion. A minimum of three composite soil samples (each consisting of 5 sub-samples) from each mitigation site should be submitted to a soil laboratory (such as The Soil and Plant Laboratory, Inc. of Santa Clara) for fertility analysis and recommendations.

No detailed soil studies have been conducted at the East Bayshore Road Mitigation Site. Soils have likely been compacted under fill and development for many years and will require texture and fertility sampling as well as remedial treatment as outlined above for the on-site soils. Salinity should also be analyzed during soil testing.

A thorough hazardous materials study (as per the California Code of Regulations, Title 22 (Environmental Health Section)) is highly recommended. A full Title 22 hazardous materials analysis should be performed in order to prepare for both the requirements of a specialized landfill and the Regional Water Quality Control Board's (RWQCB) soil requirements.

4.6 GRADING PLAN

4.6.1 On-Site Grading

Grading for the mitigation sites should be undertaken during the bypass channel construction, as the design and construction of the on-site mitigation and the channel are inter-related.

The mixed riparian planting area along East Bayshore Avenue will be graded so that it slopes gently towards the bypass channel (Figure 4). This triangular shaped mitigation area located between at the confluence of the bypass channel and Matadero Creek will be graded so that 5 – 10 year flood events will inundate the mitigation site.

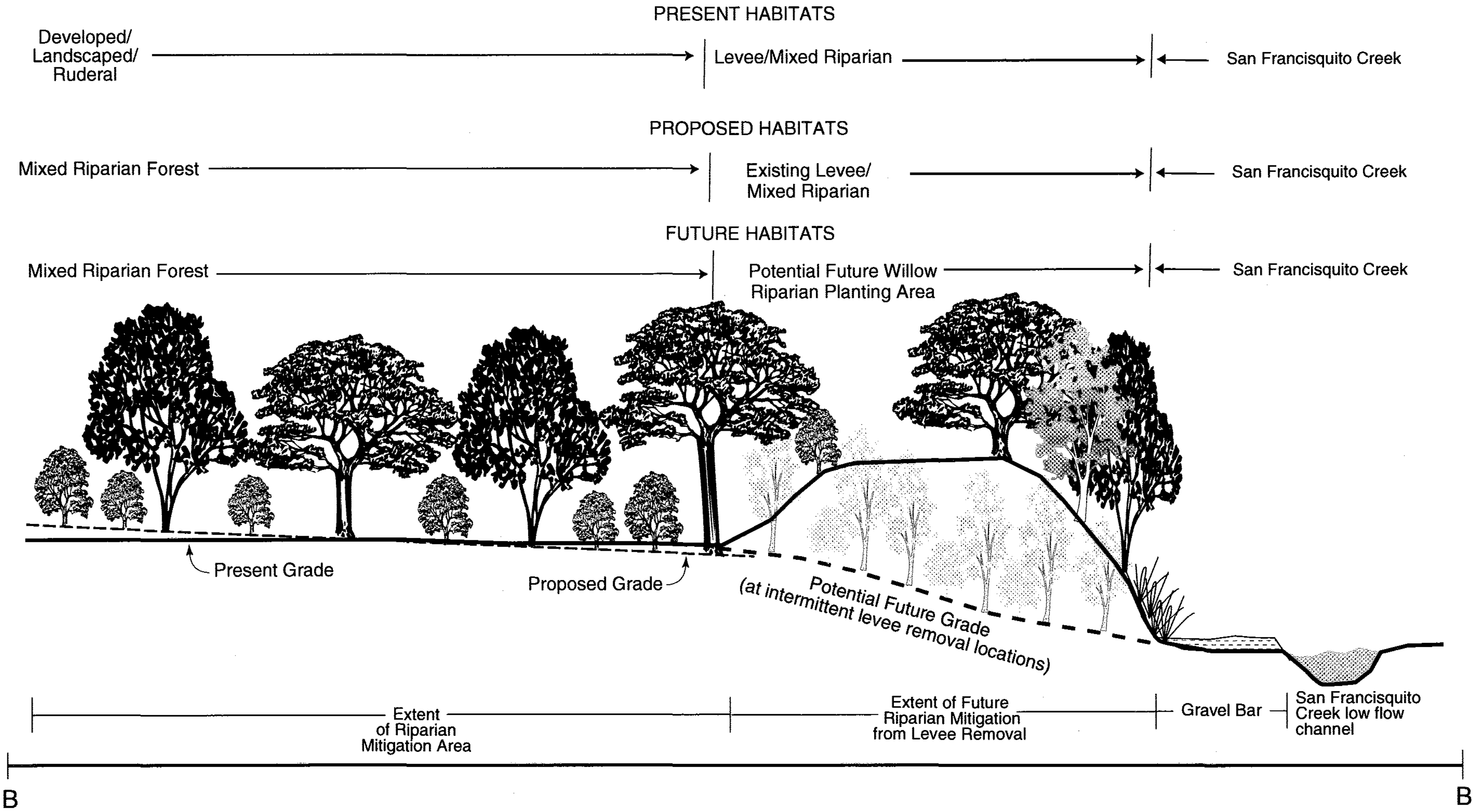
At the downstream end of the bypass channel, the mitigation area will need to gently slope towards the wetland areas that will allow for willow fascine plantings to inhibit erosion (Figure 6). The wetland mitigation area along the service access road will be graded down to adjacent target habitat elevations (Figure 4).

The inside slope of the Matadero Creek side of the bypass channel will be graded to a slope of 2:1 or less to allow for willow cutting installation. Grading at the mitigation sites outside of the bypass channel will not create slopes steeper than 3:1 to ensure stability during plant establishment. Graded areas should be hydroseeded with native grasses (see Section 5.3.3) after other planting activities.

4.6.2 Off-Site Grading

Grading at the off-site mitigation area incorporates current mitigation needs as well as being able to accommodate any future flood control project along San Francisquito Creek. The final design grade at the East Bayshore Road Mitigation Site should gently slope towards the creek (Figure 7). Figure 7 also shows locations where the levee gapping could occur if eventually integrated into the long-term San Francisquito Creek flood control project.

EAST BAYSHORE ROAD MITIGATION SITE (OFF-SITE), CONCEPTUAL CROSS-SECTION


PRESENT HABITATS
Developed/ Landscaped/ Ruderal
Levee/Mixed Riparian
San Francisquito Creek
PROPOSED HABITATS
Mixed Riparian Forest
Existing Levee/ Mixed Riparian
San Francisquito Creek
FUTURE HABITATS
Mixed Riparian Forest
Potential Future Willow Riparian Planting Area
San Francisquito Creek
Present Grade
Proposed Grade
Potential Future Grade (at intermittent levee removal locations)
Extent of Riparian Mitigation Area
Extent of Future Riparian Mitigation from Levee Removal
Gravel Bar
San Francisquito Creek low flow channel
B
B'

Not to Scale

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Matadero / Barron Creeks Long-Term Remediation Project, Mitigation and Monitoring Plan: Off-Site Cross Section

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5.0 SITE DESIGN

5.1 ON-SITE MITIGATION

5.1.1 Riparian Mitigation

Riparian habitat plantings will occupy the areas outlined in Figure 4. The removal of select non-native plant species from the riparian corridor will also be utilized for mitigation by replanting these areas with a native willow-dominated riparian community. Riparian tree and understory plantings will fill all available planting areas on-site, creating dense, native riparian habitat. Mitigation areas will be contiguous with existing riparian habitat. This site will contain a minimum of 1.02 acres of created or restored riparian habitat. Furthermore, approximately 0.80 acres of non-native species will be eradicated and replaced with native vegetation. Therefore, on-site riparian mitigation totals 1.82 acres.

The mitigation areas will be graded where necessary to ensure the appropriate slope for tree establishment. Soils will be amended or treated at this time. The order of events for construction of the mitigation site is as follows:

1) Prepare detailed plans and specifications;
2) Obtain regulatory permits;
3) Install silt and ESA fencing;
4) Eradicate select non-native species from the project vicinity;
5) Construct flood bypass channel;
6) Grade mitigation areas to design elevations;
7) Sample subsoils and loosen/amend as necessary;
8) Plant native woody vegetation in mitigation area as described in the planting plan below, and;
9) Hydroseed (or mulch) all denuded areas as soon as possible.

5.1.2 Wetland Mitigation

The wetland mitigation will consist of a minimum of 0.28 acres of jurisdictional wetlands created on-site. Wetland creation will occur along the edge of the flood bypass channel and in upland areas immediately adjacent to the PAFB by excavating those areas to match the grade of existing nearby target wetland habitats (Figure 4). Due to the location of the mitigation site between Matadero Creek and the PAFB, it is predicted that the habitat will be a mix of freshwater and salt marsh habitat. The extent of these two habitat types will depend on the level of soil salts at the design grade, the motility of soil salts in adjacent areas, the frequency and duration of flooding in the PAFB, and the frequency and duration of flood flow diversion events.

The order of events for the construction of the mitigation site is as follows:

1) Prepare detailed plans and specifications;
2) Obtain regulatory permits and approvals;

3) Install silt and ESA fencing;
4) Create buffer zone for pickleweed habitat;
5) Eradicate select non-native species from the project vicinity;
6) Construct flood bypass channel;
7) Grade mitigation site (if not completed during channel construction) to elevation of nearby target wetland habitats;
8) Sample subsoils and amend as necessary, and;
9) Hydroseed (or mulch) the denuded upland areas only as soon as possible after grading activities.

5.2 OFF-SITE RIPARIAN MITIGATION

Mixed riparian woodland will be established at the East Bayshore Road Mitigation Site by removing all existing debris, hardscape, and non-native vegetation in the mitigation area, grading the parcel to the appropriate elevation and slope, and amending the soils as necessary. All open areas will be planted with native riparian forbs, shrubs, and/or trees. The mitigation will be approximately 0.64 acres in size. The order of events for construction of the off-site mitigation is as follows:

1) Perform detailed soils and groundwater analyses;
2) Prepare detailed plans and specifications;
3) Obtain regulatory permits;
4) Install silt and ESA fencing;
5) Eradicate select non-native species from the project vicinity;
6) Girdle existing orchard trees;
7) Grade mitigation site with a gentle slope toward the existing levee;
8) Loosen, replace or amend soils as necessary;
9) Plant native vegetation in mitigation area as described in the planting plan below;
10) Hydroseed (or mulch) all denuded areas as soon as possible.

5.3 PLANTING PLAN, ON- AND OFF-SITE

For both mitigation sites, planting locations must account for species tolerances and environmental conditions. The success of this mitigation project will rely upon appropriate species placement and maintenance. For example, willow plantings need to be in areas where the water table is near the soil surface, whereas other riparian plant species cannot tolerate any extended root zone saturation. Therefore, all site preparation, planting activities, and monitoring needs to involve a qualified biologist. For this conceptual stage of the planning process we have compiled species planting associations and their approximate planting zones at the mitigation sites.

Planting stock should originate from propagules (seeds, acorns, cuttings) collected from the Matadero Creek and San Francisquito Creek watersheds. If propagules are not available within these watersheds, the propagule search can be expanded to adjacent watersheds and, if necessary, to other areas within northern Santa Clara County and/or southern San Mateo County. The District and/or a qualified biologist should approve all propagule sources. The propagules should be grown by a qualified revegetation grower and installed by a licensed landscaping contractor with prior revegetation experience with similarly sized projects under the guidance of a qualified biologist.

Different plant associations will be utilized to accommodate the variability in conditions among the planting sites. This is most apparent between wetland and riparian habitat creation areas, but is equally as important between the different riparian planting areas. Planting guidelines need to be adhered to in order to assure the viability of the plantings. In general, the understory and groundcover plantings should be interspersed with the upper- and mid-canopy tree species, to form a matrix that will mature into high-quality habitat.

Species spacing details can be found in Table 4. Hydroseeding should occur prior to irrigation basin construction and plantings. Specific details will be addressed in the plant associations below. Wetland areas will not require plantings as they will abut existing habitat and be easily colonized provided the grading creates the appropriate elevations and soil properties.

5.3.1 Plant Associations - On and Off-site Mitigation

Willow Riparian Association - On-Site Mitigation. The willow riparian association will be planted at four locations on-site: mitigation areas (1) along the downstream end and outboard edge (from the toe of slope to the end of grading) of the bypass channel, (2) in locations recommended by CDFG to filter sediment before the runoff enters wetland areas dominated by pickleweed, (3) within areas where non-native plant species removal will occur and (4) as a landscape feature along the MSC side of the bypass channel between the top of the knee wall and the MSC floodwall. The planting materials in this association include cuttings of arroyo willow for most areas, and fascines of arroyo and shining willows (with live stakes) for the riparian areas immediately adjacent to the bypass channel (Figure 6). The understory should include the shrub California blackberry and all disturbed areas should be hydroseeded with the native grass mix from Table 5 below, immediately after site preparation to promote native groundcover, limit erosion, and exclude non-native regeneration as much as possible.

Arroyo and shining willow cuttings in non-native removal areas will be planted using a maximum of 5-foot on-center triangular spacing. Interspersed among the willow cutting plantings, California blackberry will also be installed. The same plant mix and on-center spacing will be used for landscaping between the knee wall and the MSC floodwall, and in the articulated mat. However temporary irrigation will be necessary for the landscape planting above the knee wall.

Willow fascines will be installed along the northern side of the bypass channel, between the bypass channel and the PAFB. The presence of dense willow shrub habitat resulting from the use of fascines will aid in erosion control related to discharge along the flood control channel. During installation, exact planting locations should be field-fitted by a qualified biologist.

Mixed Riparian Association (On-Site Mitigation). This association will be utilized on-site, in the triangular-shaped area of temporary disturbance near the confluence of the bypass channel and Matadero Creek. The mid-canopy plantings consist of box elder and blue elderberry while understory components include common snowberry and California blackberry. All disturbed

Table 4. Plant Installation Specifications

Site	Association	Common Name	Scientific Name	Spacing	Approximate Percentage	Container*
On-site	**Willow Riparian & Enhancements**	arroyo willow	*Salix lasiolepsis*	5 ft (cuttings)	60	cutting or fascine
		shining willow	*Salix lucida* ssp. *lasiandra*	5 ft (cuttings)	20	cutting or fascine
		California blackberry	*Rubus ursinus*	5 ft	20	deepot
	Mixed Riparian	blue elderberry	*Sambucus mexicana*	12 ft	25	treepot
		coast live oak	*Quercus agrifolia*	15 ft	35	treepot
		box elder	*Acer negundo*	12 ft	20	treepot
		common snowberry	*Symphoricarpos albus* var. *laevigatus*	8 ft	10	treepot
		California blackberry	*Rubus ursinus*	8 ft	10	deepot
Off-site	**Oak Riparian**	valley oak	*Quercus lobata*	15 ft	20	treepot
		coast live oak	*Quercus agrifolia*	15 ft	20	treepot
		California buckeye	*Aesculus californica*	12 ft	10	treepot
		blue elderberry	*Sambucus mexicana*	12 ft	10	treepot
		box elder	*Acer negundo*	12 ft	10	treepot
		California coffeeberry	*Rhamnus californica*	10 ft	10	treepot
		coyote brush	*Baccharis pilularis*	10 ft	10	treepot
		common snowberry	*Symphoricarpos albus* var. *laevigatus*	8 ft	5	treepot
		California blackberry	*Rubus ursinus*	8 ft	5	deepot

*Container sizes: deepots @ 2½" X 2½" X 10" deep
treepots @ 4" X 4" X 14" deep

areas need to be hydroseeded with the native grass and legume mixture immediately after site preparation (see Section 5.3.3). Spacing details are in Table 4. Prior to all plantings, hydroseeding should occur (see Section 5.3.3).

Oak Association (Off-Site Mitigation). This association will be utilized at the East Bayshore Road Mitigation Site. The planting materials in this group include coast live oak and valley oak in the upper canopy (Table 4). Mid-canopy and shrub species include California buckeye, blue elderberry, box elder, coyote brush, common snowberry (Table 4), and the legume mixture described in Table 5 immediately after site preparation.

Due to likely future flood protection projects (in ~15 years) for San Francisquito Creek, plantings will have to take into account construction access needed for the future work (Figure 7). Although there is uncertainty about long-term project components, plantings can be arranged to limit the impact of future activities.

In order to limit the impact that the flood control construction project may have on the plantings, coyote brush and California blackberry, relatively fast growing and common shrubs, will be planted adjacent to the floodwall footprint. Moving towards the creek, the next area should contain the more drought tolerant species such as valley oak, box elder, coffeeberry, and California blackberry. This can be graded into coast live oak, blue elderberry, and California blackberry. Planting should be a mosaic of species for habitat complexity to develop quickly, and therefore the location of all planting should be field-fitted by a qualified biologist approved by a District representative. Prior to all plant installation, hydroseeding should occur (see Section 5.3.3).

5.3.2 Plant Installation Methods

Container Plants

The recommended container plants (Table 4) will be installed between November and March, when rainfall has saturated the site's soils. Holes, approximately 2-feet wide and 3-feet deep, will be dug for the tree and shrub container plants. All stones greater than 3 inches in diameter will be removed from the excavated soils and replaced with native material (or an appropriate mix of soil and compost, if necessary). All plants will be installed so that their root crowns are at or slightly above (0.5 inches) the soil surface following planting, soil settlement, and initial irrigation. Plants will be irrigated immediately following planting. A 3-foot diameter irrigation basin will be constructed around each plant, and the irrigation basins will be surrounded by 4-inch high, 4-inch wide berms.

Willow Cuttings

Cuttings need to be harvested from existing arroyo and shining willow trees immediately adjacent to the planting site, especially those to be impacted by the bypass channel. In order to assure viability of the plantings, a restoration ecologist should supervise harvest as well as installation of cuttings. Cuttings should be harvested and installed in the mid-winter (January-February) when the trees are dormant. Cuttings should be "greenwood" (relatively young branches and stems) cuttings, 24-inches long, and 1/2 to 3/4 inch in diameter. Each harvested cutting needs to be examined and those with insect damage should be discarded. The cuttings need to be treated with rooting hormone immediately prior to installation to enhance rooting.

A qualified biologist will flag the planting locations for willow cuttings. Willow cuttings should be installed in groups of 5 cuttings per group at the appropriate elevation on approximately 5-foot centers.

The cuttings need to be installed through the topsoil layer so that the lower 3/4 (18 inches) of the cutting is buried. The willow cuttings need to be installed so 12 inches are in the soil and 6 inches remain above ground. Cuttings cannot be driven into the ground using a hammer or mallet. A rebar stake or digging bar should be used to drill a hole in the soil for the cutting. Soil needs to be compacted firmly around the cutting to eliminate voids between the soil and cutting. The cuttings should be transported in buckets of water and installed within 48 hours following harvesting.

Willow Fascines

Fascines are linear features consisting of willow cuttings that are bound in bundles, with tapered ends. Ideally, they should contain a mix of both arroyo and shining willow cuttings. The bundles can be up to 30 feet in length, depending on site conditions or construction limitations. However, the cuttings need to be staggered so that the tips are evenly distributed along the length of the bundle. Fascines can be 6-12 inches in diameter. Fascine bundles need to be tied tightly every 12-15 inches. Fascines are to be installed in parallel rows spaced at a maximum of 4 feet apart for 3:1 slopes. Fascines can be soaked for up to one day in water but should be installed on the same day they are harvested and prepared. They must be stored in the shade.

The fascines need to be installed in trenches, dug on horizontal contours. The trench should be half the diameter of the fascine and the width will vary as needed with the slope. Fascines should be installed immediately after trenching to reduce soil desiccation. Live stakes (cuttings) of willow need to be installed at least every three feet on the downhill side of the fascine and every 5 feet through the middle and near the ties. Fascines should overlap to form a continuous row. Two live stakes should be used at each overlap between the last ties in order to prevent lateral slipping.

Backfilling is necessary for the successful rooting of the fascines. Native soil should be utilized, working the material into the fascines and then compacted by walking along the fascines. Soils should be moistened during installation. These steps should be repeated up to the top of slope. The top of the bundle should be just visible after installation. The slope should then be hydroseeded to limit erosion.

5.3.3 Hydroseeding

Following site preparation activities, we recommend that the entire site be hydroseeded. However, the District reserves the right to apply mulch instead. Hydroseeding or mulch will stabilize denuded soils and help to prevent non-native species recruitment and regeneration. Hydroseeded species need to be applied based upon micro-site conditions and plant tolerances. The cost of hydroseeding is less than the use of pneumatic mulch, therefore we recommend its use to add to the beneficial affects of the mitigation design. The recommended hydroseeding mixes are grouped with the planting associations detailed below.

Seed should be mixed to ensure broadcast at the seed rates shown in Table 5. Seed, fertilizer, wood fiber and tackifier should be applied with hydroseed equipment in a three-step application using the following application rates:

Step 1: seed mix + wood fiber (700 lbs/acre) +fertilizer (16N-20P-20K, 300 lbs/acre)
Step 2: wheat or barley straw (4000 lbs/acre)
Step 3: wood fiber (700 lbs/acre) + non-asphaltic tackifier (120 lbs/acre)

Seed Mix

The seed mix is composed of relatively fast-growing California native species with varying degrees of salt and inundation tolerances. The seed for all species, where possible, need to originate from San Francisco Bay Area ecotypes. A letter from the seed supplier that certifies that the seed originates from Bay Area ecotypes should be submitted for approval to the project's restoration ecologist prior to purchase of the seed. The restoration ecologist will inspect the seed and seed bag labels and approve seed prior to hydroseeding.

Table 5. Specifications for hydroseed species composition by planting association.

Planting Association	Scientific name	Common name	Pounds per acre (pure live seed)
Willow Riparian	*Festuca rubra**	Pt. Molate fescue	20
	Deschampsia cespitosa ssp. *cespitosa**	tufted hairgrass	20
	*Bromus carinatus**	California brome	10
	Hordeum brachyantherum var. Salt*	meadow barley	10
Mixed Riparian	*Lotus scoparius**	deerweed	20
	*Bromus carinatus**	California brome	20
	Hordeum brachyantherum var. Salt*	meadow barley	20
Oak Riparian	*Lotus scoparius**	deerweed	15
	*Lupinus succulentus**	arroyo lupine	15
	Hordeum brachyantherum var. Salt*	meadow barley	10
	*Bromus carinatus**	California brome	10
	Eschscholzia californica	California poppy	10
Wetland	N/A		
		Total	**60** (per association)

* seed collected from Bay Area ecotype available from Pacific Coast Seed.

Pellet-Inoculation of Legume Seed

Seed of all leguminous species (arroyo lupine and deerweed) need to be pellet-inoculated in accordance with Phillips and Williams (1987). Legume seed needs to be pellet-inoculated at a rate of 5 times the amount recommended on the inoculant's package. Legume seed needs to be sown within 90 days after inoculation or will be re-inoculated prior to hydroseeding. Inoculated legume seed should have a calcium carbonate coating.

Straw Mulch

Straw mulch should be derived from wheat or barley. Straw mulch should be applied on the same day that the area is hydroseeded. The straw mulch should be applied at a rate of 4000 lbs/acre using a blower-type mulch spreader. Mulch should be applied to cover the area uniformly and assure that sunlight is not completely excluded from penetrating to the ground surface.

Straw should be unused, dry, and not musty, moldy, caked or otherwise of poor quality. The Contractor should furnish evidence that clearance has been obtained from the County Agricultural Commissioner, as required by law, before straw from outside the county in which it is to be used is delivered to the work site. The Contractor should provide evidence from a California County Agricultural Commissioner certifying freedom from any seed rated as A, B or C in the State of California Department of Food and Agriculture, Division of Plant Industry, Pest Ratings of Noxious Weed Species and Noxious Weed Seed. Straw that has been previously used as bedding is not recommended.

Seeding Time

The slope will be hydroseeded immediately after grading activities and other site preparations have completed.

Irrigation

Irrigation will not be necessary since tidal inundation and natural rainfall during an average rainfall year will supply enough water for the establishment of the species in the hydroseed mix (Table 5).

5.3.4 Weed Control

Herbaceous weeds and other non-native vegetation must be controlled from the mitigation areas. Within the irrigation basins, weeds should be controlled with mulch or removed by hand when necessary. A 3-inch thick layer of mulch will be placed within the 3-foot diameter irrigation basin to be constructed around each tree and shrub installed (see Irrigation in Maintenance Plan). Weeds will be removed by hand from all revegetated areas using willow cuttings or fascines.

5.3.5 Plant Protection

Browse damage to the plantings from wildlife could be severe if protective measures are not taken. All plantings (except for plantings in the floodplain, coyote brush and willow plantings, and specialized plantings of wattles and mats) will be caged with a foliage protector. The foliage protector will be installed flush to the ground, approximately 4-feet high and 3-feet in diameter, and will be supported by 3 rebar posts. All protective cages will be installed immediately following planting.

5.4 WILDLIFE IMPACT AVOIDANCE MEASURES

5.4.1 Potential Water Quality Impacts to Steelhead Trout and Fall-run Chinook Salmon

Steelhead trout and fall-run Chinook salmon are not expected to spawn in Matadero Creek, and very little riparian habitat along the immediate banks of the creek will be permanently impacted by this project. Steelhead rainbow trout are known to spawn in San Francisquito Creek. However, no habitat along the immediate banks of the creek will be impacted by this project, and no work is proposed inside of the existing levee of San Francisquito Creek. Therefore, no short-term or long-term impacts to salmonid habitat at the on-site or off-site mitigation area are expected to result from this project.

Nevertheless, construction could adversely affect water quality in Matadero Creek through increased input of sediments. Water quality impacts could affect steelhead and salmon both on-site and in downstream areas.

Avoidance Measure 1. Water quality measures. A Storm Water Pollution Prevention Plan (SWPPP) may be required as part of the permit process. This permit will be obtained from the RWQCB. As part of the project design, the SWPPP will include bioswales, hazardous material containment facilities, and erosion control seeding to prevent excessive siltation and non-point source pollutants from entering the watercourses. All these measures will maintain water quality on the site and water quality-related impacts to steelhead will be avoided. With implementation of permit requirements to maintain water quality there will be no effect on steelhead trout and Chinook salmon.

5.4.2 Potential Impacts to Nesting Raptors

Several raptors, including special-status species such as the Northern Harrier, Cooper's Hawk, and White-tailed Kite, are known to occur in the project vicinity and may breed on the mitigation sites, or close enough that nests may be potentially disturbed by mitigation implementation-related activities. Any loss of fertile raptor eggs or nesting raptors, or any activities resulting in raptor nest abandonment, would constitute a significant impact. Mitigation site implementation activities such as tree removal, site grading, etc., that disturb a nesting raptor on-site or immediately adjacent to the construction zone would constitute a significant impact.

Therefore, the measures described in the District's Nesting Bird Guidelines (NBG) (SCVWD 2000) should be implemented to avoid the adverse environmental effects of the proposed mitigation project on any raptors nesting within the mitigation sites or immediately adjacent to the site. These measures will also comply with the Migratory Bird Treaty Act.

5.4.3 Potential Impacts to Burrowing Owls and their Burrows, Nests, Eggs, or Young

A few Burrowing Owls are known to occur on the closed portion of the Palo Alto landfill just northeast of the on-site mitigation. However, habitat quality on the mitigation site is marginal, at best, for this species, as the few areas having California ground squirrel burrows and relatively short vegetation (e.g., the ruderal habitats) are in close proximity to taller vegetation, and feral cats and other predators are common in the mitigation site area. Therefore, Burrowing Owls are unlikely to occur on the site, except possibly as rare dispersants. At the off-site mitigation area, suitable nesting habitat is completely absent and Burrowing Owls are presumed absent.

5.4.4 Potential Impacts to Nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows

Saltmarsh Common Yellowthroats and Song Sparrows, possibly including the Alameda Song Sparrow, are fairly common breeders in riparian and dense wetland vegetation at the on-site mitigation location. If mitigation site construction takes place during the breeding season, which extends roughly from early March to mid-August for both species, the nests, eggs, and/or young of these species could be destroyed or abandoned due to project-related disturbance. Earth-moving, plant species eradication, or other activities that physically alter vegetation used for nesting could result in direct impacts to nests of these species, and construction work in close proximity to active nests could potentially disturb adults to the point of nest abandonment. Such destruction or abandonment of nests of Saltmarsh Common Yellowthroats and Alameda Song Sparrows, both uncommon, special-status species, would constitute a significant impact under CEQA. Therefore, implementation of one or more measures outlined in the NBG (SCVWD 2000) is necessary to avoid impacts to breeding Saltmarsh Common Yellowthroats and Song Sparrows during mitigation site implementation.

5.4.5 Compliance with Additional Laws and Regulations Applicable to Biotic Resources

Regulatory Overview for Birds Other Than Raptors

The Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment, a violation of the MBTA.

California State Fish and Game Code

Migratory birds are also protected in California. The State Fish and Game Code §3503 emulates the MBTA and protects birds' nests and eggs from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFG and would constitute a significant impact.

Project Applicability

The vast majority of birds found on the project site are protected under the MBTA. Project construction has the potential to take nests, eggs, young or individuals of these protected species. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to the abandonment of nests.

Waterbirds such as the Mallard, Gadwall, Pied-billed Grebe, and American Coot may nest in areas within or immediately adjacent to Matadero Creek and San Francisquito Creek just downstream from Route 101. These species and the Canada Goose, Northern Pintail, Gadwall, Cinnamon Teal, and possibly the American Avocet, Black-necked Stilt, and others, may nest in or very close to areas in the diked salt marsh and the adjacent pond at the southern end of the on-site mitigation location. If mitigation site construction were to occur when nesting waterbirds were present in and around these ponds, nests could be destroyed, and nests in close proximity to the mitigation site could be abandoned as a result of project-related disturbance.

To avoid this risk and to comply with the applicable state and federal laws, the District proposes to implement its own Nesting Bird Guidelines (SCVWD 2000).

5.4.6 Potential Impacts to Salt Marsh Harvest Mice and Salt Marsh Wandering Shrews

The salt marsh harvest mouse is presumed to be present in the pickleweed-dominated habitats of the PAFB, and it is possible that the salt marsh wandering shrew occurs there as well. The implementation of the mitigation site is not expected to result in any impacts to pickleweed-dominated habitats. However, the pickleweed adjacent to the project site is contiguous with large expanses of pickleweed in the flood control basin in which the salt marsh harvest mouse and salt marsh wandering shrew are assumed to be present.

Mitigation implementation at the East Bayshore site will not affect any pickleweed-dominated habitat, as all activities at that location will occur outside of the existing levees of San Francisquito Creek.

A Biological Assessment has been prepared for submission to the USACE and USFWS (H.T. Harvey & Associates 2002b). The potential effects on these species as well as recommended avoidance measures have been outlined in detail in that report. It is anticipated that the USFWS will prepare either a Letter of Concurrence or a Biological Opinion that will direct the minimization of impacts and implementation of avoidance measures for these species.

5.4.7 Recommended Construction Periods

Given the overlapping nature of the dates provided in the previous sections necessary to avoid all impacts to special status species, we recommend the following approach. All significant vegetation should be removed the year prior to the beginning of construction to avoid impacts to nesting raptors. Secondly, construction of the downstream portion of the bypass channel should be scheduled for after June 15 until the onset of rains to reduce the potential for take of salt marsh harvest mice.

6.0 MAINTENANCE PLAN

6.1 MAINTENANCE OF MITIGATION SITES

For the on-site and off-site (East Bayshore Road) riparian mitigation sites, maintenance will be necessary at regular intervals for the first few years and will decrease over time. Minimal maintenance is anticipated for the on-site wetland mitigation area.

Maintenance at both sites includes a program for the removal of invasive, non-native vegetation, such as giant reed. During the monitoring period, the presence of undesirable non-native plant species will be assessed and the project proponent will be responsible for removing species that could affect site performance.

Monitoring data (see following chapter regarding monitoring requirements) will be used to evaluate the success of the mitigation sites. Information from this monitoring program will provide feedback to direct necessary maintenance, adjustments to planting areas or techniques, etc. to ensure the success of the mitigation site.

6.1.1 On-Site Mitigation

Dead Plant Replacement. In years 2, 3 and 5 all dead riparian plants will be replaced if the average plant survival for all installed species combined falls below the 80% plant survival criterion outlined in the next chapter, unless the percent cover criteria are met in Years 3 and 5. An adaptive management approach towards plant replacement will be instituted. Thus, the plant species chosen for replacement will be based upon a critical evaluation of the vigor and growth of the plantings installed. Those species that are well adapted to the planting sites and are rapidly establishing will generally be used to replace dead plants.

Irrigation. The riparian plantings will require irrigation during the 3-year plant establishment period. In Year 1, the plantings will be irrigated approximately 2-3 times per month from March through October. Each irrigation period will provide a sufficient amount of water (15 gallons or more per plant) to encourage the development of taproots. The irrigation schedule in Year 2 will be based on the water requirements of the plants and is anticipated to be substantially less (approximately 1-2 times per month), while in Year 3, little irrigation (0-1 time per month) will be required. The irrigation schedule may be modified to ensure vigorous plant growth during the summer months and/or times of drought.

The willow cuttings should not require irrigation during their establishment period; the fascines and landscape willow cuttings (located above the knee wall) could be irrigated during the establishment period using either a sprinkler irrigation system or a drip/bubbler system.

The wetland plantings will largely be dependent upon proximity to surface and groundwater, and will only require irrigation, if needed, in Year 1. Due to the nature of the site, they should be irrigated via truck irrigation or hand watering of the plantings on an as-needed basis.

The irrigation system for riparian plantings should be regularly maintained during the 3-year plant establishment period. Any component of the system not functioning properly will be subsequently repaired as part of regular site maintenance. The maintenance will include a provision that the irrigation system will be continuously checked and kept in working order.

Weed Control. Weeds within the wetland and riparian restoration sites will be controlled around each plant and throughout the site as a whole during the 3-year plant establishment period. The irrigation basin around each installed tree and shrub will be kept weed free by maintaining the rice straw mulch layer and manually removing the weeds that become established in the mulch. Weeds throughout the site will be kept to a maximum height of 1-2 feet throughout the year using a mower and/or "weed eater". Weed control activities will occur before seed set, to the extent possible. Care will be taken to avoid impacting any native woody species that colonize the gaps between riparian plantings. Therefore, maintenance personnel will be trained to differentiate between native and non-native species.

Plant Protection. The riparian mitigation site's foliage protectors will be maintained in good working order during the first 3 years of the plant establishment period. Following Year 3, the conditions of the foliage protectors and the plants will be evaluated and the protectors removed, if appropriate.

Natural Recruitment. Care will be taken to avoid damaging naturally recruiting native riparian and wetland plant species during maintenance and non-native species removal activities. Maintenance personnel will be trained to differentiate between native and non-native species. Fostering natural recruitment will aid in rapid habitat development.

6.1.2 Off-Site Mitigation

Dead Plant Replacement. In years 2, 3 and 5 all dead riparian trees and shrubs will be replaced if the average plant survival for all installed species combined falls below the 80% plant survival criterion outlined in the next chapter, unless the percent cover criteria are met in Years 3 and 5. An adaptive management approach towards plant replacement will be instituted. Thus, the plant species chosen for replacement will be based upon a critical evaluation of the vigor and growth of the plantings installed. Those species that are well adapted to the plantings sites and are rapidly establishing will generally be used to replace dead plants.

Irrigation. The riparian plantings will require irrigation during the 3-year plant establishment period. In Year 1, the plantings will be irrigated approximately 2-3 times per month from March through October. Each irrigation period will provide a significant amount of water (15 gallons or more per plant) to encourage the development of taproots. The irrigation schedule in Year 2 will be based on the water requirements of the plants and is anticipated to be substantially less (approximately 1-2 times per month), while in Year 3, little irrigation (0-1 time per month) will be required. The irrigation schedule may be modified to ensure vigorous plant growth during the summer months and/or times of drought. Due to the moist nature of this site, they should be irrigated using a quick coupler system that allows for hand watering of the plantings on an as-needed basis as directed by a District representative.

The irrigation system should be regularly maintained during the 3-year plant establishment period. Any component of the system not functioning properly will be subsequently repaired as part of regular site maintenance. Given the proximity of the area to a District levee access road, local businesses and apparent public use, it is possible that damage to the plants and irrigation system will occur. If continuous damage occurs, one possible solution would be to install a fence (e.g., split-rail) along the portions of the mitigation area that are in close proximity to the anthropogenic disturbance to discourage intrusion (Figure 7).

Weed Control. Weeds within the riparian restoration site will be controlled around each plant and throughout the site as a whole during the 3-year plant establishment period. The irrigation basin around each installed tree and shrub will be kept weed free by maintaining the rice straw mulch layer and manually removing the weeds that become established in the mulch. Weeds throughout the site will be kept to a maximum height of 1-2 feet throughout the year using a mower and/or "weed eater". Weed control activities will occur before seed set, to the extent possible. Care will be taken to avoid impacting any native woody species that colonize the gaps between riparian plantings. Therefore, maintenance personnel will be trained to differentiate between native and non-native species.

Plant Protection. The riparian mitigation site's foliage protectors will be maintained in good working order during the first 3 years of the plant establishment period. Following Year 3, the conditions of the foliage protectors and the plants will be evaluated and the protectors removed, if appropriate.

Natural Recruitment. Care will be taken to avoid damaging naturally recruiting native riparian tree and shrub seedlings during maintenance and non-native species removal activities. Maintenance personnel will be trained to differentiate between native and non-native species. Fostering natural recruitment will aid in rapid habitat development.

7.0 MONITORING PLAN

7.1 INTRODUCTION

Annual monitoring of the mitigation sites by a qualified biologist will determine if the project has met its mitigation obligation. Attainment of the performance criteria outlined below will indicate that the mitigation site is well on its way towards meeting the long-term habitat goals with little chance of failure.

Both the on-site and off-site riparian mitigation sites will be monitored over a 10-year period. The on-site wetland mitigation area will be monitored over a 5-year period. By the final year of monitoring for the riparian (Year 10) and wetland (Year 5) mitigation sites, they should be sufficiently well established to determine if they would eventually achieve the long-term goals with little chance of failure. The results of the final year of monitoring will be compared to the performance criteria to determine if they have been met. If the performance criteria of the mitigation project have not been met, monitoring will continue until they have been achieved.

7.2 ON-SITE AND OFF-SITE RIPARIAN MITIGATION SITES

The project will create and restore riparian habitat for a minimum of 2.46 acres at the two mitigation sites along Matadero and San Francisquito Creeks to compensate for project impacts. The following elements will be monitored to determine the target functions and values of the mitigation site and to assess site stability.

7.2.1 Final Site Goals

Final site goals will be used to determine if the project applicant has met the mitigation obligation. Attainment of the final goals will indicate that the mitigation sites are well on their way towards meeting the long-term habitat goals with little chance of failure. The final success criteria for the two riparian mitigation sites will be evaluated in the last year of the 10-year monitoring period.

Percent Cover. Percent cover will be used as the primary indicator of successful establishment of riparian habitat. The final site goal for percent cover is 50% cover by native riparian woody species in the riparian mitigation areas at Year 10.

7.2.2 Performance Criteria

This section contains the performance criteria and trend characteristics for the on-site and off-site mitigation areas. Monitoring of performance criteria and trend characteristics will evaluate the extent to which the mitigation areas are incrementally developing high quality riparian habitat values.

Plant Survival. All trees and shrubs installed have an 80% survival performance criterion during the 3-year plant establishment period, unless the percent cover criteria are met. In Year 5, two years after the completion of plant establishment, survival will not be lower than 70%. If by Year 5, either 70% survival or 15% cover has been achieved, plant survival monitoring can cease. Plant survival monitoring will take place in Years 1-3 and 5.

Percent Cover. Percent cover of woody species will be monitored in Years 1-3, 5, 7, and 10 to determine how the site is developing over time. At Years 3, 5, 7, and 10 the percent cover values will have shown steady trends towards, or will have met the percent cover performance criterion. The percent cover performance criteria for the riparian plantings are shown in Table 7. Percent cover of both the installed and the naturally recruited woody plants will be measured. No performance criteria for percent cover are set for Years 1 and 2, as it is anticipated that the cover values will be negligible for the young plants.

Table 6. Percent Cover Criteria

	Year 3	Year 5	Year 7	Year 10
Riparian Mitigation Areas	5%	15%	30%	50%

7.2.3 Trend Characteristics

Trend characteristics to be monitored include tree height, natural recruitment and plant health and vigor. The results of the trend characteristics monitoring will aid in the assessment of the sites' progress.

Tree Height. Tree height will be monitored in Years 1-3, 5, 7, and 10. For tree height, the trees will show a steady trend towards the heights set for Years 3, 5, 7, and 10 shown in Table 7. No specific tree heights are set for Years 1 and 2 as it is anticipated that the site will still be developing.

Table 7. Tree Height Trend Characteristics (feet).

Species	Year 3	Year 5	Year 7	Year 10
California buckeye	4	5	7	9
coast live oak	5	6	8	10
box elder	5	7	9	12
blue elderberry	5	7	9	12
arroyo willow	5	7	9	12
shining willow	5	8	12	14

The tree height trend characteristics set in Table 7 represent quantitative goals for measuring vegetation performance. However, it is expected that over time, the trees will exceed these height characteristics.

The methods for tracking all other trend characteristics are described below.

7.2.4 Monitoring Methods

As-Built Plans. As-built plans will be developed within 18 weeks following the completion of mitigation site construction and planting. The as-built plans will show any significant deviations from the final plans and specifications for the site. Deviations that will be documented include changes in the numbers and species of plants installed, deviations from plant installation locations, unplanted areas, and any hardscape features added to, or removed from, the site. Future analysis of the site will be based on these plans.

Sample Site Selection. Vegetation data will be collected by means of permanent transect and plot sampling. Transect locations will be determined via a random-stratified method. Sample plots will be 30 feet by 30 feet, and will be randomly located at each mitigation site.

Sufficient quantity of permanent plots will be established so that a minimum of 5% of each mitigation area is represented in the sampling. Permanent transects for the calculation of percent cover in the riparian mitigation areas will be randomly located at each mitigation site. Data on plant survival, tree height and plant health and vigor will be collected within the sample plots. Percent cover data will be collected via transects.

The position of the permanent transects and sample plots will be demarcated with rebar posts and an aluminum identification tag. If the District wishes to use GPS units to mark the transect ends in lieu of rebar posts, then a differential GPS unit with sub-meter accuracy must be used. In addition to permanent plot and transect sampling, a qualitative assessment of the entire site will be undertaken to assess the performance of areas outside the sampling plots. This visual reconnaissance could reveal aspects of site performance not exhibited in the sampling plots. Key indicators to be observed would be clusters of mortality, bank erosion, stunting, fire, vandalism, sedimentation, or other changes.

Plant Survival. Plant survivorship will be determined by counting all of the plants located in the sample plots. Plant survival will be tallied by species and for the site as a whole. Plant survivorship will be monitored for 5 years after installation or until the plant survivorship success criterion has been met.

Percent Cover. Percent cover will be determined using the line intercept method employed along fixed transects. Percent cover will be calculated by species, and for the entire site. Comparisons in percent cover between monitoring years will be presented in successive monitoring reports. The number of fixed transects that will be installed will be determined at the beginning of Year 1 monitoring.

Tree Height. Tree height will be determined by measuring all of the trees in the sample plots, by species, using a stadia rod. Mean tree height will be compared between monitoring years.

Tree Health and Vigor. A qualitative assessment of the overall tree health and vigor will be made by considering such factors as plant color, bud development, new growth, herbivory, drought stress, fungal/insect infestation, and physical damage. The overall health and vigor will be measured on those trees sampled for tree height and will be monitored in Years 1-3, 5, 7, and 10. Plant health and vigor will be measured using the numerical and qualitative scale shown in

Table 9. Health and vigor for each tree species will be ascertained by averaging the numerical values for each species. Plant health and vigor will be assessed for all trees located within the sample plots.

Table 8. Plant Health and Vigor Categories

Qualitative Values	Numerical Values	Observations
High health and vigor	1-3	67-100% healthy foliage
Medium health and vigor	4-6	34-66% healthy foliage
Low health and vigor	7-9	0-33% healthy foliage

Natural Recruitment. Trends in natural recruitment will be measured by counting naturally recruited native and non-native woody species on-site encountered within a 5-foot band along the transects established to assess percent cover. Comparisons of the number of naturally recruited species (stems and clumps) will be made between monitoring years.

Photo-documentation. Photo-documentation of the site will be conducted from a number of fixed locations at Years 1-3, 5, 7, and 10. Photographs will also be taken to record any events that may have a significant effect on the success of restoration such as flood, fire, or vandalism. The locations for photo-documentation will be selected during the formation of the as-built plans.

Management Recommendations. Management recommendations will be included in each monitoring report. Recommendations will identify potential impediments to restoration efforts and will propose solutions to site problems as appropriate.

Other. Significant aspects of site performance and conditions not covered in the formal monitoring plan will also be discussed. These will include such items as vandalism, irrigation system problems, maintenance requirements, and any aspects of the site that may be inhibiting restoration efforts.

7.3 ON-SITE WETLAND MITIGATION

The project will create and restore a minimum of 0.28 acres of USACE jurisdictional wetlands on-site to compensate for project impacts. The following variables will be monitored during the 5-year period to determine the target functions and values of the mitigation site and to assess site stability.

7.3.1 Final Site Goals

Final site goals will be used to determine if the project applicant has met the mitigation obligation. Attainment of the final goals will indicate that the on-site wetland mitigation area is well on its way towards meeting the long-term habitat goals of the site with little chance of failure. The final success criteria for the wetland mitigation area will be evaluated in the last year of the 5-year monitoring period.

Percent Cover. Percent cover will be used as the primary indicator of successful establishment of wetland habitat. The final goal is 60% cover of wetland indicator species (Table 11) by the end of the monitoring period (Table 12).

Table 9. Wetland Indicator Status Category

Indicator Category	Symbol	Frequency of Occurrence in Wetlands
Obligate *	OBL	Greater than 99%
Facultative Wetland *	FACW	67-99%
Facultative *	FAC	34-66%
Facultative Upland	FACU	1-33%
Upland	UPL	Less than 1%

* Species characterized under this indicator category are considered wetland indicator species.

Table 10. Wetland Mitigation Site, Wetland Indicator Species Percent Cover Success Criteria

	Year 2	Year 3	Year 5
Wetland Mitigation Site	15%	30%	60%

Wetland Delineation. A formal delineation of the created jurisdictional areas will be undertaken at the site 3 years following site construction. The USACE jurisdictional area mitigation will be considered a success if the wetland delineation reveals that the requisite 0.28 acres of USACE jurisdictional area was created. If the requisite acreage is not achieved in Year 3, discussions with the USACE will be initiated.

7.3.2 Performance Criteria

This section contains the performance criteria for the on-site wetland mitigation area. Monitoring of performance criteria will evaluate the extent to which the wetland mitigation site is incrementally developing high quality wetland habitat values.

Percent Cover. At Years 2, 3, and 5 the percent cover values will have shown steady trends towards, or will have met the percent cover success criterion of wetland indicator species. The percent cover performance criteria for the mitigation site is shown in Table 11. No performance criteria for percent cover are set for Year 1 as it is anticipated that the site will still be developing.

7.3.3 Monitoring Methods

As-Built Plans. As-built plans will be developed within 12 weeks following the completion of mitigation site construction and planting. The as-built plans will show any significant deviations from the final plans and specifications for the site. Deviations that will be documented include changes in the site configuration or any hardscape features added to, or removed from, the site. Future analysis of the site will be based on these plans.

Percent Cover. Percent plant cover by species will be determined in approximately 5% of the surface area of the mitigation site at Years 1-3 and 5. The sample area may be slightly increased or decreased after initial data are collected and analyzed and the requisite sample surface area is re-assessed. Percent cover of wetland indicator species will be monitored in Years 1-3, and 5 via quadrat sampling. The percent cover of each species occurring within each 1-m^2 quadrat will be visually estimated. The wetland indicator status of each species will be determined, and the average percent cover attributed to wetland indicator species, as a group will be calculated. The predicted frequency of occurrence in wetlands represented by each wetland indicator status category is presented in Table 10. Obligate and facultative wetland indicator species are hydrophytes that occur "in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Wetland Training Institute 1999). Facultative indicator species may be considered wetland indicator species when found growing in hydric soils that experience periodic saturation. The wetland indicator status of each species will be determined and the average percent cover attributed to wetland indicator species, as a group, will be calculated.

Photo-documentation. Photo-documentation of the site will be conducted from a number of fixed locations at Years 1-3 and 5. Photographs will also be taken to record any events that may have a significant effect on the success of restoration such as flood, fire, or vandalism. The locations for photo-documentation will be selected during the formation of the as-built plans.

Management Recommendations. Management recommendations will be included in each monitoring report. Recommendations will identify potential impediments to restoration efforts and will propose solutions to site problems as appropriate. Adaptive management based on the findings of project monitoring is an important component of the successful restoration of these habitats.

Other. Significant aspects of site performance and conditions not covered in the formal monitoring plan will also be discussed. These will include such items as vandalism, irrigation system problems, maintenance requirements, and any aspects of the site that may be inhibiting restoration efforts.

7.4 MONITORING SCHEDULE

Vegetation monitoring will be conducted at the mitigation sites between April and October of each monitoring year. Monitoring reports will be prepared following data collection and will be submitted to the relevant regulatory agencies by December 31 of each monitoring year. Table 12 shows the years in which each monitoring task will be conducted.

7.4.1 Implementation Monitoring

A qualified biologist will monitor the project during construction to ensure that project impacts are consistent with those outlined in this document and that the mitigation sites are installed as described in this plan. Areas of active construction will be visited at least twice weekly and site visit reports will be prepared for all inspections.

Table 11. Matadero Creek Bypass, Mitigation Monitoring Schedule

Monitoring Task	12 Weeks post-project installation	Year 1	Year 2	Year 3	Year 5	Year 7	Year 10
As-built plans	X •						
Plant survival		X	X	X	X		
Wetland delineation				•	•		
Percent cover		X •	X •	X •	X •	X	X
Plant health and vigor		X	X	X	X	X	X
Natural recruitment		X	X	X	X	X	X
Photo-documentation		X •	X •	X	X •	X	X

X: Applicable to both the on-site and the off-site riparian mitigation sites
•: Applicable to on-site wetland mitigation site
Shaded boxes indicate that performance criteria are applicable that year.

7.4.2 Project Sign-off

Monitoring will be conducted for at least 5 years at the on-site wetland mitigation area and 10 years at the on-site and off-site riparian mitigation sites. At the final year of the monitoring period for each agencies' mitigation, a monitoring report will be prepared to establish whether the mitigation sites have achieved the success criteria. If the sites have successfully met the expected performance criteria, a letter will be sent to the permitting/resource agencies acknowledging the sites' conditions and requesting their concurrence. It is anticipated that the project will be considered a success by the resource agencies and "signed off" when the performance criteria are met in Year 10 following the end of the monitoring period for both of the riparian mitigation sites.

7.5 DATA ANALYSIS

Data analysis will be conducted as soon as possible following collection of field data. Minimizing delays between data collection and data analysis provides an opportunity to return to the site to verify any discrepancies encountered in the original data set and to conduct further sampling as necessary before the site significantly evolves. Data analysis will be conducted using standard spreadsheet, database, and statistical computer applications. Data input will be spot-checked, and the project manager will carefully review results. The yearly monitoring results will be compared with results from previous years to evaluate site progress.

7.6 REPORTING

After mitigation project construction is complete, a report will be prepared. This report will include a copy of the time zero as-built plans and will provide a thorough description of the status of the mitigation site, with particular attention paid to any adjustments to the final mitigation plan. This report will be completed 18 weeks from the completion of site implementation and will be submitted to the regulatory permitting agencies.

Data collection will take place in April-October of each monitoring year. Data analysis will generally require 4-8 weeks, with the first year probably taking longer due to the time required to set up the appropriate spreadsheets and data base programs. Preparation of reports will take an additional 3-4 weeks. Copies of photo-documentation will be provided with the reports. Monitoring reports will be submitted to the regulatory permitting agencies by December 31 of each year at the latest.

A final report summarizing the mitigation project, evaluating the sites' overall performance, and providing maintenance recommendations will be prepared and submitted 60 days prior to the end of monitoring. Monitoring will cease when the site has met all of the project goals or when the reviewing agencies agree that the site is expected to meet the goals with little chance of failure.

The names, titles, and companies of all people who conducted the fieldwork and prepared the report will be included in each report. The initial and final reports will include a copy of the regulatory permits, and any special conditions and subsequent letters from the resource agencies. Maps showing monitoring areas will also be included. Field data sheets will be available for review by the agencies upon request. Reports will be prepared in the following format:

1. Introduction
2. Materials/Methods
3. Results
4. Discussion
5. Recommendations
6. References
7. Appendices

7.6.1 Monitoring Procedure Adjustments

The monitoring biologists will annually review the protocol and results of the monitoring program. Adjustments to monitoring procedures or schedule may be required as the sites change over time, or if logistical problems render a procedure unduly difficult to conduct. Such adjustments would be developed by the monitoring biologist and reported to the permitting and resource agencies and proposed for approval prior to application. After reviewing annual reports the agencies may also have suggestions for adjustments to the monitoring program. Agency suggestions will be reviewed, and if appropriate will be incorporated into the following year's monitoring program. Thus, it is anticipated that the monitoring program may need occasional adjustments to remain accurate, complete, and feasible.

7.6.2 Monitoring-Maintenance Linkage

The results of monitoring will be conveyed to the administrator of the maintenance contractor to allow the information to be factored into their ongoing maintenance program. Annual reports will be provided to those associated with the sites' maintenance. In addition, if monitoring crews notice significant problems related to the sites' maintenance and performance, verbal reporting will be initiated to facilitate remediation.

7.7 COMPLETION OF MITIGATION

When final monitoring goals have been met, the project proponent will submit a letter to the permitting agencies requesting approval to cease monitoring.

7.8 CONTINGENCY MEASURES

If performance criteria are not achieved for any portion of the mitigation project in any year, or if any of the final success criteria are not met, the District will work with the permitting agencies to prepare an analysis of the cause(s) of failure. If requested by the permitting agencies, a remedial action plan will be prepared in concert with the permitting agencies' action plan within 2 months of the initial request. Implementation of remedial actions would depend on the nature of the work; thus a schedule will be presented to the agencies for review and approval as part of the remedial action plan. Alternative mitigation sites have not been considered at present since the sites appear to be fully suitable for restoration. Alternative mitigation site planning will begin if it becomes apparent that the long-term success criteria for the sites will not be achieved in a timely fashion.

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APPENDIX A.
PLANT SPECIES

Appendix A. Vascular Plants Observed at the Matadero Creek Flood Control Project Site, Palo Alto, California.

FAMILY NAME	SCIENTIFIC NAME	COMMON NAME
areae	*Acer negundo* var. *californicum*	box elder
Apiaceae	*Conium maculatum*	poison hemlock
	Foeniculum vulgare	sweet fennel
Apocynaceae	*Nerium oleander*	oleander
	Vinca major	greater periwinkle
Araliaceae	*Hedera helix*	English ivy
Arecaceae	*Washingtonia* sp.	fan palm
Asteraceae	*Achillea millefolium*	common yarrow
	Artemisia douglasiana	California mugwort
	Aster sp.	aster
	Baccharis pilularis	coyote brush
	Centaurea solstitialis	yellow star-thistle
	Cirsium vulgare	bull thistle
	Conyza canadensis	horseweed
	Grindelia sp.	
	Picris echioides	bristly ox-tongue
	Senecio mikanioides	German ivy
	Silybum marianum	milk thistle
	Xanthium strumarium	cocklebur
Brassicaceae	*Brassica nigra*	black mustard
	Lepidium latifolium	broad-leaf peppergrass
	Raphanus sativus	wild radish
	Rorippa nasturtium-aquaticum	water cress
Caprifoliaceae	*Sambucus mexicana*	blue elderberry
Chenopodiaceae	*Atriplex* sp.	atriplex
	Beta vulgaris	beet
	Salicornia virginica	common pickleweed
Cyperaceae	*Cyperus eragrostis*	tall flatsedge
Dipsacaceae	*Dipsacus* sp.	teasle
Euphorbiaceae	*Ricinus communis*	castor bean
Fabaceae	*Acacia decurrens*	green-wattle acacia
	Acacia melanoxylon	blackwood acacia
	Melilotus indica	Indian sweet clover
Fagaceae	*Quercus agrifolia*	coast live oak
Hippocastanaceae	*Aesculus californica*	California buckeye
Juglandaceae	*Juglans californica* var. *hindsii*	Northern California black walnut
	Juglans regia	English walnut
Juncaceae	*Juncus* sp.	rush
Lauraceae	*Umbellularia californica*	California bay

Appendix A. Vascular Plants Observed at the Matadero Creek Flood Control Project Site, Palo Alto, California.

FAMILY NAME	SCIENTIFIC NAME	COMMON NAME
Malvaceae	*Malva parviflora*	cheeseweed
Myoporaceae	*Myoporum laetum*	myoporum
Myrtaceae	*Eucalyptus globulus*	blue gum eucalyptus
	Eucalyptus pulverulenta	silver-leaved eucalyptus
Oxalidaceae	*Oxalis corniculata*	creeping oxalis
Pinaceae	*Pinus* sp.	pine
Poaceae	*Arundo donax*	giant reed
	Bromus diandrus	ripgut brome
	Cortaderia selloana	pampas grass
	Cynodon dactylon	Bermuda grass
	Distichlis spicata	salt grass
	Elytrigia pontica ssp. *pontica*	tall wheatgrass
	Festuca sp.	fescue
	Hordeum hystrix	Mediterranean barley
	Piptatherum miliaceum	smilo grass
Polygonaceae	*Rumex crispus*	curly dock
	Rumex salicifolius	willow dock
Rosaceae	*Pyracantha angustifolia*	firethorn
	Rubus ursinus	California blackberry
	Rubus discolor	Himalayan blackberry
Salicaceae	*Populus alba*	white poplar
	Salix lasiolepsis	arroyo willow
	Salix lucida ssp. *lasiandra*	shining willow
Simaroubaceae	*Ailanthus altissima*	tree of heaven
Solanaceae	*Nicotiana glauca*	tree tobacco
Typhaceae	*Typha angustifolia*	narrow-leaved cattail
Ulmaceae	*Ulmus pumila*	Siberian elm

The species are arranged alphabetically by family name for all vascular plants encountered during the plant survey. Plants are also listed alphabetically within each family. In some cases, it was not possible to accurately identify a particular plant to the species level due to the absence of specific anatomic structures required for identification.

Section 3.0 Results and Discussion

3.1 Percent Cover

The average total percent cover of native woody species for both mitigation sites combined was approximately 65% in Year-10 (Table 2) which exceeds the Year-10 final success criterion of 50% (H. T. Harvey & Associates 2003).

Table 2. Average Total Percent Cover in Years 5, 7, and 10

Transect #	Total % Cover		
	Year-5	**Year-7**	**Year-10**
Onsite			
Transect 1	0%	1%	30%
Transect 2	52%	70%	51%
Transect 3	58%	81%	81%
Onsite Average Total Percent Cover	**37%**	**51%**	**54%**
Offsite			
Transect 1	33%	42%	50%
Transect 2	95%	100%	100%
Offsite Average Total Percent Cover	**64%**	**71%**	**75%**
Grand Average Total Percent Cover	**51%**	**61%**	**65%**

A

Linden

3.2 Plant Height

Average native woody plant height showed an increasing trend from Year-5 to Year-10 at both the onsite and offsite mitigation locations (Table 3). When averaged across mitigation sites, the average native woody plant height increased from Year-5 (6.3 ft) to Year-7 (7.8 ft) to Year-10 (9.5 ft) (Table 3). The observed increase in average plant height from Year-5 to Year-10 demonstrates an overall increasing trend and therefore meets the plant height final success criterion established in the MMP (H. T. Harvey & Associates 2003).

STATE OF CALIFORNIA THE RESOURCES AGENCY GRAY DAVIS, GOVERNOR

DEPARTMENT OF FISH AND GAME

CENTRAL COAST REGION
(707) 944-5520
Mailing address:
POST OFFICE BOX 47
YOUNTVILLE CALIFORNIA 94599
Street address:
7329 SILVERADO TRAIL
NAPA CALIFORNIA 94558

November 13, 2003

Notification Number: 1600-2003-0119-3

Santa Clara Valley Water District
Attention: Jason Christie
5750 Almaden Expressway
San Jose, CA 95118-3686

1601 LAKE AND STREAMBED ALTERATION AGREEMENT

This agreement is issued by the Department of Fish and Game pursuant to Division 2, Chapter 6 of the California Fish and Game Code:

WHEREAS, the applicant Jason Christie / Santa Clara Valley Water District, hereafter called the Operator, submitted a signed 1601 proposing to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed or lake of the following water: Matadero Creek, located in Range 2W, Township 6S, respectively, in the County of Santa Clara, State of California; and

WHEREAS, the Department has determined that such operations may substantially adversely affect existing fish and wildlife resources including water quality, hydrology, aquatic or terrestrial plant or animal species; and

WHEREAS, the project has undergone the appropriate review under the California Environmental Quality Act; and

WHEREAS, the Operator shall undertake the project as proposed in the signed PROJECT DESCRIPTION and PROJECT CONDITIONS (attached). If the Operator changes the project from that described in the PROJECT DESCRIPTION and does not include the PROJECT CONDITIONS, this agreement is no longer valid; and

WHEREAS, the agreement shall expire on December 31, 2005; with the work to occur between April 30 and October 15; and

WHEREAS, nothing in this agreement authorizes the Operator to trespass on any land or property, nor does it relieve the Operator of the responsibility for compliance with applicable Federal, State, or local laws or ordinances. Placement, or removal, of any material below the level of ordinary high water may come under the jurisdiction of the U. S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act;

THEREFORE, the Operator may proceed with the project as described in the PROJECT DESCRIPTION and PROJECT CONDITIONS. A copy of this agreement, with attached PROJECT DESCRIPTION and PROJECT CONDITIONS, shall be provided to contractors and subcontractors and shall be in their possession at the work site.

Failure to comply with all conditions of this agreement may result in legal action.

This agreement is approved by:

Robert W. Floerke
Regional Manager
Central Coast Region

cc: Kristine Atkinson

STATE OF CALIFORNIA THE RESOURCES AGENCY GRAY DAVIS, GOVERNOR

DEPARTMENT OF FISH AND GAME
CENTRAL COAST REGION
(707) 944-5520
Mailing address:
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
Street address:
7329 SILVERADO TRAIL
NAPA, CALIFORNIA 94558

10/24/03

Notification Number: 1600-2003-0119-3
Matadero Creek, Santa Clara County

Attn: Jason Christie
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

PROJECT DESCRIPTION and PROJECT CONDITIONS

Description

Matadero Creek is located in the northwest portion of Santa Clara County draining primarily the cities of Palo Alto and Los Altos Hills into San Francisco Bay. To provide flood protection to the residences and businesses of Palo Alto, the Santa Clara Valley Water District (SCVWD) proposes to construct the Matadero/Barron Creek Remediation Project. The project is divided by Highway 101 into an upstream portion (bridge and floodwall construction) and a downstream portion (overflow channel construction). A Streambed Alteration Agreement (R3-2002-0919) has already been issued for the upstream portion of the project. This Streambed Alteration Agreement covers the construction of overflow channel portion of the project downstream of Highway 101. The maintenance of the channel shall be under the SCVWD's Stream Maintenance Program (Stream Alteration Agreement R3-2001-0119).

The SCVWD proposes to construct an overflow channel (to take flows resulting from a two year or greater storm event) which will begin at the south bank of Matadero Creek about 90 feet downstream of the East Bayshore Road bridge (Construction Plans Dated April 02, 2003). The channel will diverge from the creek at about a 30 degree angle, station 25+14, for about 300 feet and then turn east along the north edge of the Palo Alto Municipal Services Center (MSC) for about 530 feet. The channel continues around to the back or east side of the MSC for another 400 feet ending at station 12+85. A levee/access road is proposed to be relocated and constructed for about 180 feet past the end of the overflow channel. This will move the existing levee/access road about 40 feet closer to the MSC providing some additional habitat area within the Flood Basin.

The overflow channel bottom will be 55 feet wide of which 30 feet will be concreted and 25 feet earthen. The concrete portion is needed to support maintenance equipment during maintenance operations in the channel. The overflow channel bank next to the MSC will be a knee high concrete retaining wall and a 3:1 or flatter plated earthen slope up to the MSC pavement. A 3 to 5 foot tall floodwall will be built along the edge of the MSC pavement. The overflow channel side slope on the Flood Basin will be natural and two feet or less in height. Areas next to Flood Basin side of the overflow channel that are disturbed will be revegetated with native vegetation ecologically suitable to the local corridor.

Conditions

1. Construction shall be limited to the period beginning on April 30 and ending on October 15. Planting, however, may be done between October 15 and January 15 to take advantage of the winter rainy season. Work, except for channel construction, will be allowed between October 15 and April 30 on the Palo Alto Municipal Services Center (MSC) site and between the levee on the back side of the MSC (to the East of the MSC) and the MSC. Removal of vegetation along the north side of the MSC and along East Bayshore Road will be allowed from the period beginning on April 30 and ending on December 31, 2003 only in the construction area and no closer than 50 feet from the top of bank of Matadero Creek. Trees, however, may be removed from this area (within the 50 feet from top of bank) but their root masses and stumps shall be left in place for bank stability until channel construction begins.

2. The Operator shall not remove vegetation within the stream from March 1 to July 15 to avoid impacts to nesting birds. However, the Operator may remove vegetation by hand during this time if a qualified biologist conducts a survey for nesting birds within three days **prior to** the vegetation removal, and ensures no nesting birds shall be impacted by the project. These surveys shall include the areas within 200 feet of the edge of the proposed impact area(s). If active nests are found, a minimum 50-foot (200 feet for raptors) fence barrier shall be erected around the nest site. No habitat removal or any other work shall occur within the fenced nest zone even if the nest continues active beyond July 15, until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project. The Operator shall submit the mapped survey results to the Department prior to vegetation removal to ensure full avoidance measures are in place.

3. When work in a flowing stream is unavoidable, the entire stream flow shall be diverted around the work area by a barrier, temporary culvert, and/or a new channel. Sheet piling may be used if creek flows are continuous on the north side of Matadero Creek and if the sheet piling can be placed in a manner that will not leak sediment into Matadero Creek thereby inceasing turbidity more than 50 NTUs'. The water diversion plan shall allow stream flows to gravity flow around or through the work site using temporary culverts or stream flow is pumped around the work site using pumps and screened hoses. Coffer dam construction shall be adequate to prevent seepage into or from the work area. Coffer dams shall consist of sand bags (or sturdy, non-porous bags filled with soil excavated at the project site may be utilized in place of sand bags) or sheet piling and shall be installed in close proximity to the work area. The entire work area shall be dewatered. The

enclosure and the supportive material shall be removed when the work is completed and the removal shall normally proceed from downstream in an upstream direction. Normal flows shall be restored to the effected stream immediately upon completion of work at that location. All criteria and best management practices used with the SCVWD's Stream Maintenance Program or associated permits regarding diversions, discharges, and water quality testing are considered to be part of this Agreement.

4. The operator shall hire a biologist, with all necessary State and Federal permits, to relocate all fish/amphibians within the work site prior to dewatering. Captured fish/amphibians shall be moved to the nearest appropriate site on the stream. A record shall be maintained of all fish/amphibians captured and moved, and the record shall be provided to the Department (c/o1600 program, Post Office Box 47, Yountville, California 94599) with appropriate Streambed Alteration Notification number.

5. When any dam (any artificial obstruction) is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain fishlife below the dam pursuant to Fish and Game Code Section 5937.

6. The project site has been identified as an area that is potentially inhabited by the a species federally listed as threatened, the California red-legged frog (CRLF), and by three species Federally and State listed as endangered, the salt marsh harvest mouse (also a State Fully Protected Species), the California Clapper Rail, and the California Least Tern. The operator is required to comply with all applicable state and federal laws, including the California and Federal Endangered Species Acts. This agreement does not authorize the take of any state or federally listed species. Liability for the take or incidental take of such listed species remains the responsibility of the Operator for the duration of the project. Any unauthorized take of such listed species may result in the prosecution and nullification of the Agreement.

7. A metal flashing barrier shall be installed adjacent to Salt Marsh Harvest Mouse (SMHM) habitat (in a location upland of all pickleweed vegetation) in a manner so as to 100 percent preclude SMHM from entering the work area. This exclusionary fence shall be buried 4 inches and shall extend a minimum of 24 inches above the ground. Knowledgeable and experienced biologists approved by the Department shall be present during the entire process of fence installation so as to ensure that it shall 100 percent exclude SMHM from the work area and so as to ensure that the fence is not installed in a manner that may be creating cover (locations for the SMHM to hide) for the SMHM. The qualified biologist shall ensure that best management practices are followed such that there is no risk of "take" to the SMHM during exclusionary fence installation. This biological monitor shall be present during the entire process of fence removal at the conclusion of construction activities.

8. Knowledgeable and experienced biologists approved by the Department and retained by the District as biological monitors, shall be present during all Project activities within areas of Salt Marsh Harvest Mouse (SMHM) and California Clapper Rail (CCR) habitat

to help avoid mortality or injury to individual SMHM and CCR, and to minimize disturbance to the habitat. A biologist who holds or is named on a valid 10(a)(1)(A) Federal Scientific Collection permit issued by the Service or who is specifically named in the U.S. Fish and Wildlife Service Biological Opinion for this project, for handling SMHM and CCR (hereinafter referred to as "permitted biologist") shall be the only biologist allowed to handle SMHM and CCR. All biological monitors shall provide quality control and quality assurance for implementation of the measures to avoid mortality or injury to SMHM and CCR. The biological monitors shall ensure compliance with the measures provided in this Agreement. At any time that a SMHM or CCR is found in the work area, work shall cease until the animal moves out of the work area.

9. The District and its contractors and agents working in SMHM and CCR habitat shall provide biological monitors with the express authority to order any immediate changes in Project activities that are necessary to avert a risk of imminent mortality or injury to SMHM and/or CCR, and to stop any activity that cannot be or has not been brought into immediate compliance. The Department shall be notified the same day or within 24 hours of circumstances that led biological monitors to halt work or to otherwise avert threatened mortality or injury to SMHM and/or CCR.

a. At a minimum, the qualified biologist shall inspect the project site each morning and be present at the start of construction in all new work areas. If the biological monitor observes any conditions that may place an individual SMHM at risk, the biological monitor shall stay at the project site to ensure that all problems have been 100 percent corrected.

10. A biological monitor shall inspect underneath any vehicle for SMHM that is parked for 30 minutes or more immediately prior to moving the vehicle.

11. The District, its contractors and agents, shall conduct an orientation program for all persons who will work in SMHM and CCR habitat at the start of construction. The program shall consist of a brief presentation from a permitted biologist, knowledgeable about the biology of the SMHM and CCR. The education program shall include a discussion of the biology of the SMHM and CCR, the habitat needs of these species, and their status under California Endangered Species Act and the Fish and Game Code (Fully Protected Species Status). A fact sheet containing this information shall also be prepared and distributed. Upon completion of the orientation, employees shall sign a form stating that they attended the training. These forms shall be submitted to the Department.

12. Personnel who detect any mice or CCR on site shall immediately report their finding to a biological monitor. The biological shall determine if the reported mouse is a SMHM. If the biological monitor determines that the detected mouse is a SMHM, or if a CCR has been detected then work shall cease until the animal moves out of the work area.

13. If the District, or any of its employees, contractors or agents kills or injures an individual SMHM or CCR, or finds any such animal dead or injured, project activities in the habitat

shall immediately cease and the Department and Service shall be notified within 30 minutes of the discovery.

14. Any dead or injured animal shall be turned over to the Department, the Service or its agent.

15. A written report detailing the date, time, location, and general circumstances under which a dead or injured individual SMHM or CCR was found shall be submitted to the Department and the Service no later than three (3) business days following the incident.

16. All biological monitors shall be supplied with cellular phones for the purpose of efficient communication in SMHM and CCR habitat.

17. Within 10 days prior to initiation of work within the project foot print, all pickleweed in the project footprint shall be removed by hand.

18. Prior to construction, a survey shall be conducted by a qualified biologist for nesting raptors. If raptors are nesting, there shall be no impacts to habitat within 200 feet of the raptor nests trees during the active nesting season (approximately 01 February-01 August).

19. Immediately prior to construction, a qualified biologist shall survey the area for presence of the yellow warbler, salt marsh common yellow throat, burrowing owl, white tailed kite, northern harrier, and salt marsh wandering shrew. If any individuals are found, the contractor shall not start construction until the individual leaves the site or the contractor shall contact the Department at (707) 944-5520.

20. Prior to project construction, protocol burrowing owl surveys shall be conducted by a qualified biologist during the nesting season. If burrowing owls are observed on site, the contractor shall immediately contact the Department at (707) 944-5520. There shall be no impacts to any habitat within 250 feet of the nest burrow until the end of the active nesting season in order to minimize the chance of take. Habitat mitigations will be required for any impacts to burrowing owl habitat. Preconstruction surveys shall be conducted within two (2) weeks prior to any ground disturbing activities on the site regardless of whether or not nesting owls were observed during the protocol surveys.

21. All biological survey results shall be reported (monthly) in writing to:
    Streambed Alteration Notification Number: 1600-2003-0119-3
    California Department of Fish and Game, Central coast Region
    P.O. Box 47
    Yountville, CA 95499.

22. No pets shall be permitted to be at the site during the construction.

23. If a stream channel has been altered during operations, its low flow channel shall be

returned as nearly as possible to its natural state without creating a future bank erosion problem. The gradient of the streambed shall be as nearly as possible to the same gradient as existed prior to disturbance.

24. Erosion control measures shall be utilized throughout all phases of the operation where sediment runoff from exposed slopes threatens to enter waters of the State. At no time shall silt laden runoff be allowed to enter waters of the State. At no time shall silt runoff be allowed to enter the stream or be placed where it may enter the stream.

25. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents, shall be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within or adjacent to the streams shall be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles shall be moved away from the stream prior to refueling and lubrication.

26. Wash water containing mud or silt from aggregate washing or other operations shall not be allowed to enter a lake or flowing stream.

27. Silty/turbid water from the excavation and/or project activities shall not be discharged into the stream, lake, or into the storm drains. Such water shall be pumped into a holding facility or into a settling pond located in flat stable areas outside of the stream channel, or sprayed over a large area outside of the stream channel or lake to allow for natural filtration of sediments. At no time shall turbid water from the settling ponds be allowed to enter back into the stream channel until water is clear of silt.

28. Turbidity levels within all streams and drainages on the site shall not exceed 50 NTU's over the background levels.

29. Poured concrete shall be excluded from the wetted channel for a period of 30 days after it is poured. During that time the poured concrete shall be kept moist, and runoff from the wet sacked concrete shall not be allowed to enter the live stream. Commercial sealants (e.g. Deep Seal, Elasto-Deck BT Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period of time may occur. If sealant is used, water shall be excluded from the site until the sealant is dry.

30. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark below such flows occur.

31. All concrete debris and anthropogenic trash located in the creek bed of the project area before, during, and at the conclusion of construction activities shall be removed.

32. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.

33. Orange fencing shall surround wetlands and plants which are intended to be avoided.

34. Cape ivy (*Senecio mikanoides*) and giant reed (*Arundo donax*) removed during this project shall be bagged and appropriately disposed of in a landfill. It shall not be used in the composting or left otherwise exposed in or around the project site.

35. *Arundo donax* shall be cut to a height of 6 inches or less, and the stumps shall be painted with an herbicide approved for aquatic use within 5 minutes of cutting. Application of herbicides to *Arundo donax* shall not be made within 72 hours of predicted rainfall. All non-native plant removal shall be done with hand tools. No excavation or soil disturbance of any kind shall occur.

36. Any trees which must be cut shall have the stump and root mass left in place until channel construction begins.

37. Restoration shall include the revegetation of stripped or exposed areas. All planting shall be done between October 15 and January 15 to take advantage of the winter rainy season.

38. For each unit area that is stripped of vegetation, three unit areas shall be revegetated with native vegetation that is ecological suitable to the natural corridor of the project area. Based on expected riparian impacts (temporary loss: 0.48 acres and permanent loss: 0.66 acres), the District shall create 2.46 acres of riparian habitat to compensate for project impacts. Of this, 1.82 acres shall be constructed on-site with the remaining 0.64 acres constructed adjacent to San Francisquito Creek.

39. Revegetation and replacement plantings shall consist of locally-obtained, native species that are suitable ecologically with the existing native plants.

40. Revegetation monitoring shall be conducted annually for a minimum period of five (5) years. Planting densities shall be 10-foot centers for trees, 5-foot centers for shrubs and willow sprigs shall be placed on 1-foot centers. All planting shall have a minimum of 80% survival (except for willows which shall have a minimum 25% survival) at the end of 5 years and shall attain 70% cover after three years and 75% coverage after 5 years. Success criteria shall transition to percent cover only after an 80% survival rate (25% survival rate for willows) is met after one year (minimum) without supplemental irrigation. The methodology for measuring cover shall be based on 100 hits per transect with 100% total cover allowable per transect and shall not be based the total number of layers measured separately then added. If the survival and/or cover requirements are not meeting these goals, the Operator is responsible for replacement planting, additional watering, weeding, invasive exotic eradication, or any other practice, to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for five years after planting. An annual status report on the mitigation shall be provided to the Department of Fish and Game by December 31 of each year. This report shall include the survival, percent cover, and height of both tree and shrub species.

The number by species of plants replaced, an overview of the revegetation effort, and the method used to assess these parameters shall also be included. Photos from designated photo stations shall be included.

41. If the Operator needs more time to complete the authorized activity, the work period may be extended on a day-to-day basis by Kristine Atkinson at 831-427-2638, or, alternatively, to the Yountville office at 707-944-5520.

42. A copy of this agreement must be provided to the contractor and all subcontractors who work within the stream zone and must be in their possession at the work site. The stream zone that this permit has jurisdiction over includes the riparian, marshes, active channel, and wetland areas beyond the top of bank.

43. Department personnel or its agents may inspect the work site at any time.

44. The Operator is liable for compliance with the terms of this Agreement, including violations committed by the contractors and/or subcontractors. The Department reserves the right to suspend construction activity described in this Agreement if the Department determines any of the following has occurred:
A). Failure to comply with any of the conditions of this Agreement
B). Information provided in support of the Agreement is determined by the Department to be inaccurate.
C). Information becomes available to the Department that was not known when preparing the original conditions of this Agreement (including, but not limited to, the occurrence of State or federally listed species in the area or risk to resources not previously observed)
D).The project as described in the Agreement has changed or conditions affecting fish and wildlife resources change.

45. Any violation of the terms of this Agreement may result in the project being stopped, a citation being issued, or charges being filed with the District Attorney. Contractors and subcontractors may also be liable for violating the conditions of this agreement.

Amendments and Renewals

The Operator shall notify the Department before any modifications are made in the project plans submitted to the Department. Project modifications may require an amendment or a new notification.

This Agreement is transferable to subsequent owners of the project property by requesting an amendment.

To renew the Agreement beyond the expiration date, a written request for a renewal must be submitted to the Department (1600 Program, Post Office Box 47, Yountville, California 94599) for consideration at least 30 days before the Agreement expiration date. A renewal requires a fee. The Fee Schedule can be obtained at www.dfg.ca.gov/1600 or by phone at (707) 944-5520.

Renewals of the original Agreement are issued at the discretion of the Department.

To modify the project, a written request for an amendment must be submitted to the Department (1600 Program, Post Office Box 47, Yountville, California 94599). The fee for an amendment is one-half (½) of the original fee. Amendments to the original Agreement are issued at the discretion of the Department.

Please note that you may not proceed with construction until your proposed project has undergone CEQA review and the Department signs the Agreement.

I, the undersigned, state that the above is the final description of the project I am submitting to the Department for CEQA review, leading to an Agreement, and agree to implement the conditions above required by the Department as part of that project. I will not proceed with this project until the Department signs the Agreement. I also understand that the CEQA review may result in the addition of measures to the project to avoid, minimize, or compensate for significant environmental impacts:

Operator's name (print): Jason Christie

Operator's signature:

Signed the 28th **day of** October **, 2003**

California Regional Water Quality Control Board
San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.swrcb.ca.gov/rwqcb2

Date: NOV 2 0 2003
File No. 2188.07 (PFA)
Site/Project No. 02-43-C0432
Corps File No. 26877S

Ms. Melissa Dargis
Planner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

SUBJECT: Conditional Water Quality Certification for the Santa Clara Valley Water District, Matadero/Barron Creeks Long-Term Remediation Project, Flood Control Bypass Channel in the City of Palo Alto, Santa Clara County

Dear Ms. Dargis:

We have reviewed the application and hereby issue conditional certification for the Santa Clara Valley Water District (District), Matadero/Barron Creeks Long-Term Remediation Flood Control Bypass Channel Project (Project) in the City of Palo Alto. This letter summarizes the Project and provides conditions imposed by the San Francisco Bay Regional Water Quality Control Board (Board).

The United States Army Corps of Engineers has determined that the Project qualifies for a Nationwide Permit 18, *Minor Discharges*, and 33, *Temporary Construction, Access and Dewatering,* pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). In accordance with CWA Section 401, the District has applied to this office for State water quality certification.

The following project information is based on application materials dated February 11, 2003, revised May 2, 2003 and received by this office on February 13, and May 5, 2003, respectively.

Project Purpose: The District has designed the Project to increase flood capacity to provide computed 100-year flood damage protection, meet District and Federal Emergency Management Agency (FEMA) flood protection standards, and remove at-risk areas from the Flood Insurance Rate Map. Currently, high flows back up in the Project vicinity and can cause flooding to adjacent neighborhoods.

Location and Setting: The Project is located immediately downstream (northeast) of U.S. 101, between East Bayshore Road and the Palo Alto Flood Basin (PAFB) in the City of Palo Alto.

Project activities will occur within Matadero Creek, between the Creek and the City of Palo Alto Municipal Services Center (MSC), and in the PAFB.

The Project site is surrounded by residential, industrial, and some open space in the PAFB and along the San Francisco Bay. Downstream of U.S. 101, Matadero Creek is surrounded by high quality willow riparian habitat. In the vicinity of the Project, additional habitats include freshwater marsh, diked coastal salt marsh, ruderal field, shrub scrub habitats, and an access road on an existing levee that surrounds the MSC.

Construction: The District plans to accomplish the Project purpose by constructing an approximately 1,130 linear foot long bypass channel to carry flows greater than a 2-year flood frequency from Matadero Creek, along the perimeter of the MSC, and into the PAFB. The bypass is designed to carry maximum flows of 1,400 cubic feet per second during a 100-year flood. The bypass channel will not reduce the frequency of inundation in the floodplain of Matadero Creek and is designed only to improve conveyance of flood flows into the PAFB. As proposed, an approximately 75 linear foot long concrete inlet weir will be constructed on the right bank (looking downstream) to allow for flows to enter the bypass. The channel inlet will consist of laying back the existing bank to a 10 percent slope and armoring the upper portion with concrete to control the elevation of flows that enter the bypass. A sediment deposition area has been designed into the bypass, just downstream of the inlet, to improve sediment capture and removal in the Project area and prevent excessive sediment deposition in the bypass. The sediment deposition area is designed to reduce the area and frequency of sediment removal impacts in the Project area. The proposed 55 foot wide bypass channel invert will be constructed with a 20 foot wide concrete maintenance road down the middle to allow for safe access of maintenance equipment. The remaining 35 feet of channel bottom will be native soil. The side slope of the Matadero Creek side of the bypass channel will consist of native soil at a 2H:1V slope, except in three locations where some hardscape will be necessary to ensure channel integrity. From this outboard edge of the bypass channel, a 3H:1V graded slope will conform to the existing grade. The side slope of the bypass along the MSC will consist of a knee wall that will vary from 2 to 3 feet high. Furthermore, a 3H:1V graded slope will extend from the top of the knee wall to a floodwall adjacent to the MSC. There will be three locations along the bottom of the bypass channel where concrete will be placed along the entire bottom of the channel. The length of these three areas is 30 feet. These areas will serve as turn-around locations to be used for heavy equipment during routine maintenance and sediment removal activities.

To meet project objectives upstream of Interstate 101, the District will raise existing floodwalls between Interstate 101 and the Alma Street box culvert. This activity will involve pouring cast-in-place concrete wall extensions on top of and doweled into approximately 13,700 linear feet (90 percent) of the floodwalls in the Project area along Matadero Creek. In addition, the District will raise the headwalls at seven bridges (including Louis Road Bridge, permitted December 10, 2002, Project No. 02-43-C0422) within the Project limits.

Maintenance: To maintain flood conveyance capacity, the District has developed a maintenance protocol that will remove sediment from the bypass channel when it exceeds a depth of one foot above the channel invert, and will remove emergent vegetation when it exceeds a height of four feet.

Fill: Project construction will result in the placement of less than 25 cubic yards of fill in jurisdictional wetland habitat in the PAFB.

Impacts: According to the San Francisco Bay Water Quality Control Plan, Matadero Creek supports the following beneficial uses:

- Cold freshwater habitat (COLD),
- Fish migration (MIGR),
- Water contact recreation (REC-1),
- Noncontact water recreation (REC-2),
- Fish spawning (SPWN),
- Warm freshwater habitat (WARM), and
- Wildlife habitat (WILD).

Construction of the bypass using the proposed alignment and configuration will result in temporary impacts to 0.05 acre and permanent impacts to 0.01 acre of jurisdictional seasonal wetlands in the PAFB adjacent to the mouth of Matadero Creek. The Project will also result in temporary impacts to 0.48 acre and permanent impacts to 0.66 acre of riparian habitat along Matadero Creek. As a result, the Project will result in temporary impacts to COLD, REC-1, REC-2, WILD, and permanent impacts to COLD, REC-2, and WILD beneficial uses.

Avoidance and Minimization: To avoid impacts to water quality and beneficial uses of Matadero Creek and the PAFB the District has changed the Project design to include the following modifications: shortened the bypass by 300 feet, moved the alignment of the access road to the footprint of an existing levee, modified the channel invert to be earthen and concrete instead of concrete only, and changed the location of a concrete turn-around to avoid existing wetlands. The District has also developed impact avoidance measures described in the Matadero/Barron Creeks Long-Term Remediation Project Mitigation and Monitoring Plan, dated January 29, 2003 (MMP), and the Conceptual Storm Water Pollution Prevention Plan for the Matadero Creek Palo Alto Flood Basin, dated September 13, 2002.

Mitigation: To compensate for temporary and permanent impacts to wetlands and riparian habitat, the District will create 0.28 acre of freshwater marsh wetland habitat, 2.46 acres of riparian habitat, and eradication of non-native invasive vegetation from jurisdictional habitats at the Project site. Of the 0.28 acre of on-site wetlands created, 0.07 are to compensate for the permanent and temporary loss of wetlands resulting from the Project.

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duration

If wetland habitat forms in the constructed bypass channel and impacts are unavoidable due to routine maintenance, the District will provide compensatory mitigation of equal area and habitat type, one time only for each impact location. The additional 0.21 acre of on-site wetlands created will be used to compensate for maintenance related impacts in the bypass channel. If maintenance related impacts exceed 0.21 acre, the District will propose additional mitigation acceptable to the Executive Officer.

CEQA Compliance: The California Environmental Quality Act (CEQA) requires public agencies to comply with CEQA prior to approving any discretionary project and requires a lead agency to prepare an appropriate environmental document for such project as appropriate. The District, as lead agency, prepared a Final Environmental Impact Report for the Project dated October 2002, adopted by the District Board on December 3, 2002.

Certification: I hereby issue an order certifying that with the incorporation of the following conditions, any discharge from the applicant's proposed project described in its application will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. I also find that issuing certification for this specific discharge is not against the public interest. The following conditions are associated with this certification:

1. The District, and any contractors hired by the District to implement work described in this permit, are required to comply with the contents of this permit;

2. The Project shall be constructed as described in the application materials and summarized herein. Any additional work or variation from the described work which may result in additional or increased impacts to waters of the State (including quantity or quality of water or habitat) is not authorized, unless approved in writing by the Executive Officer prior to implementation. Note: Obtaining Executive Officer approval may require from several days to several weeks from the date of notification;

3. The District shall inform the Executive Officer of the Regional Board when the Project commences;

4. No debris, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into waters of the State;

5. Construction areas that result in bare soil shall be winterized and vegetated with appropriate native vegetation by October 15th, to prevent surface erosion and failure into the channel. Exposed earth resulting from removal of vegetation in areas outside of Matadero Creek will be contained to prevent sedimentation in Matadero Creek or the

PFB and winterized by December 31st. Any application of hydroseed shall be applied and irrigated so that germination begins by October 15th;

6. The District, or construction contractors hired by the District shall maintain a copy of this water quality certification at the Project site at all times;

7. The District shall permit the Board or its authorized representative, upon presentation of credentials:

   a. Entry onto the Project site or the premises in which records are kept.
   b. Access to copy any records required to be kept under the terms and conditions of this action.
   c. Sampling of any discharge or surface water covered by this action;

8. The District shall implement and uphold the Storm Water Pollution Prevention Plan, and Mitigation Monitoring Plan developed for the Project;

9. The District shall implement the final Self Monitoring Program Water Quality Sampling Plan for the San Francisco Bay Area Region Multi-Year Stream Maintenance Program, dated December 2001 and adopted under Regional Board Order R2-2002-0028. Water quality samples shall be collected twice daily, during construction and data shall be transmitted to Regional Board staff every two weeks;

10. Prior to excavation of soil or sediment from the Project site, the District shall characterize material to be removed using protocols described in the Santa Clara Valley Water District Sediment Characterization Plan dated December 2001. The District shall ultimately dispose of dewatered excavated material at a permitted landfill, upland disposal site, or at a reuse site in accordance with applicable state and federal regulations including applicable provisions of this Order;

5yrs monitoring wetland sur

11. The District shall monitor habitat conditions immediately downstream of the exit of the bypass channel annually for 5 years following construction to determine whether there are negative impacts to existing wetlands as a result of the Project. The District shall submit a monitoring plan to the Executive Officer for approval no less than sixty days prior to the first years monitoring. Monitoring shall include annual observations and records by trained biologists describing wetland habitat conditions in the area and whether operation of the channel is potentially resulting in negative impacts or habitat conversion. In addition, annual maintenance surveys shall measure and record average sediment deposition in the last 100 feet of the bypass channel. These data shall be analyzed together to determine whether there is excessive sediment deposition in existing wetlands and whether operation of the bypass channel is causing any negative impact. If it is determined that the bypass channel is having a negative impact on existing wetlands, the District shall develop a plan to address this issue and submit it to the Executive Officer

for approval. Monitoring reports shall be submitted to the Executive Officer for approval;

12. Certification is conditioned upon total payment of the full fee required in State regulations (23 CCR Section 3833) and owed by the applicant;

13. The District shall comply with all necessary approvals and/or permits for the Project from applicable government agencies, and shall submit copies of such approvals and/or permits to the Board prior to Project implementation;

14. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought; and,

15. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the California Water Code (CWC) and Section 3867 of Title 23 of the California Code of Regulations (23 CCR);

We anticipate no further action on this request. Any violation of water quality certification conditions is subject to administrative civil liability pursuant to CWC Section 13350. Should new information come to our attention that indicates a water quality problem with this project, the Regional Board may issue Waste Discharge Requirements pursuant to 23 CCR Section 3857.

If you have any questions pertaining to this document, please contact Paul Amato of my staff at (510) 622-2429, or by email at pa@rb2.swrcb.ca.gov.

Sincerely,

Bruce H. Wolfe
Executive Officer

Cc: Mr. Oscar Balaguer, SWRCB-DWQ
Mr. Bob Quebedeaux, U.S. Army Corps of Engineers - Regulatory
Mr. Tim Vendlinski, U.S. EPA, WTR-9,
Ms. Kristine Atkinson, CDFG

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

Regulatory Branch FEB 0 4 2004

SUBJECT: File Number 26877S

Mr. Jason R. Christie
Santa Clara Valley Water District (SCVWD)
5750 Almaden Expressway
San Jose, California 95118-3614

Dear Mr. Christie:

This letter is in reference to your submittal of February 11, 2003 concerning Department of the Army authorization to impact Corps jurisdictional waters (a total of 0.06 acre of seasonal wetlands: 0.05 acre, temporary impacts, 0.01 acre, permanent impacts) through 1) temporary dewatering and 2) the addition of approximately 20 cubic yards of concrete with rock sub-base in association with the construction of a high-flow bypass channel. Mitigation for these impacts, proposed by the Santa Clara Valley Water District (SCVWD), will be a total of 0.28 acre of onsite wetlands creation (0.07 acre for construction impacts (temporary at 1:1, permanent at 2:1) and 0.21 acre for any future potential maintenance impacts). The project site is located at and near Matadero Creek downstream (east) of U.S. 101 and adjacent to the City of Palo Alto's Municipal Services Center (3281 East Bayshore Road) in the City of Palo Alto, Santa Clara County, CA (Mountain View U.S.G.S. Quadrangle Map, in the northwest section of the quad in Range 2 West, Township 6 South).

Based on a review of the information you submitted, your project qualifies for authorization under Department of the Army Nationwide Permits 18, Minor Discharges and 33, Temporary Construction, Access and Dewatering, (67 FR 2020, January 15, 2002), pursuant to Section 404 of the Clean Water Act (33 U.S.C. Section 1344). See Enclosure 1. The project must be undertaken as described in the revised pre-construction notification (PCN) and permit application dated May 2, 2003 with associated construction plans and drawings titled "Map and Construction Plan for Matadero Creek" and with compensatory mitigation as described within the PCN and "Riparian and Wetland Mitigation and Monitoring Plan".

The project must be in compliance with the General Conditions cited in Enclosure 2 for this Nationwide Permit authorization to remain valid. Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance, Enclosure 3, verifying that you have complied with the terms and conditions of the permit. Non-compliance with any condition could result in the revocation, suspension or modification of the authorization for your project, thereby requiring you to obtain an individual permit from the Corps. This Nationwide Permit authorization does not obviate the need to obtain other State or local approvals required by law.

This authorization will remain valid for two years from the date of this letter unless the Nationwide Permit is modified, suspended or revoked. If you have commenced work or are under contract to commence work prior to the suspension, or revocation of the Nationwide Permit and the project would not comply with the resulting Nationwide Permit authorization, you have twelve (12) months from that date to complete the project under the present terms and conditions of the Nationwide Permit.

To ensure compliance with the Nationwide Permit, the following special conditions shall be implemented:

1) The permittee shall notify the Corps in writing of the anticipated start and stop dates of construction, as least 5 days prior to the initiation of construction.
2) The permittee shall supply the Corps with a post-construction report no later than 45 days after conclusion of the construction. The report shall document in writing and color photos the state of the site prior to initiation of construction and the condition of the site at the conclusion of the construction.
3) During construction, erosion control materials, including silt fences, erosion control blankets and sandbags will be on hand and utilized as deemed appropriate.
4) All materials and debris generated as a result of the project shall be removed from the site and disposed of at an approved location outside of Corps jurisdiction.
5) As mitigation, a total of 0.28 acre of onsite wetlands will be created and monitored for success, as described within the "Riparian and Wetland Mitigation and Monitoring Plan". Annual monitoring reports (due December 31 of each year) will be submitted by the SCVWD consistent with the Mitigation Plan for a minimum of five years.

5 years
on-site
wetlands
only

Should you have any questions regarding this matter, please contact Bob Quebedeaux of our Regulatory Branch at 415-977-8446 or bob.d.quebedeaux@spd02.usace.army.mil . Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available through the Forms and Contacts Block on our website: www.spn.usace.army.mil/regulatory/

Sincerely,

Edward A. Wylie

Edward A. Wylie
Chief, South Section

Enclosures

Copy furnished (w/o enclosures):
US EPA, San Francisco, CA
CA DFG, Yountville, CA
US F&WS, Sacramento, CA
US NMFS, Santa Rosa, CA
CA RWQCB, Oakland, CA

2002 Nationwide Permits

(effective 18 March 2002)

18. **Minor Discharges.** Minor discharges of dredged or fill material into all waters of the U.S. if the activity meets all of the following criteria:

a. The quantity of discharged material and the volume of area excavated do not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line;

b. The discharge, including any excavated area, will not cause the loss of more than 1/10 acre of a special aquatic site, including wetlands. For the purposes of this NWP, the acreage limitation includes the filled area and excavated area plus special aquatic sites that are adversely affected by flooding and special aquatic sites that are drained so that they would no longer be a water of the U.S. as a result of the project;

c. If the discharge, including any excavated area, exceeds 10 cubic yards below the plane of the ordinary high water mark or the high tide line or if the discharge is in a special aquatic site, including wetlands, the permittee notifies the District Engineer in accordance with the "Notification" General Condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. (See 33 CFR Part 330.1(e).); and

d. The discharge, including all attendant features, both temporary and permanent, is part of a single and complete project and is not placed for the purpose of a stream diversion. (Sections 10 and 404)

33. **Temporary Construction, Access and Dewatering.** Temporary structures, work and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites; provided that the associated primary activity is authorized by the Corps of Engineers or the USCG, or for other construction activities not subject to the Corps or USCG regulations. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must be of materials, and placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if it is determined by the District Engineer that it will not cause more than minimal adverse effects on aquatic resources. Temporary fill must be entirely removed to upland areas, or dredged material returned to its original location, following completion of the construction activity, and the affected areas must be restored to the pre-project conditions. Cofferdams cannot be used to dewater wetlands or other aquatic areas to change their use. Structures left in place after cofferdams are removed require a Section 10 permit if located in navigable waters of the U.S. (See 33 CFR Part 322.) The permittee must notify the District Engineer in accordance with the "Notification" General Condition. The notification must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources. The District Engineer will add Special Conditions, where necessary, to ensure environmental adverse effects is minimal. Such conditions may include: limiting the temporary work to the minimum necessary; requiring seasonal restrictions; modifying the restoration plan; and requiring alternative construction methods (e.g., construction mats in wetlands where practicable). (Sections 10 and 404)

Enclosure 2

Nationwide Permit General Conditions - March 18, 2002

The following General Conditions must be followed in order for any authorization by an NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.

2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

4. Aquatic Life Movements. No activity may substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

6. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (See 33 CFR Part 330.4(e).) and with any case specific conditions added by the Corps or by the State or tribe in its Section 401 Water Quality Certification or Coastal Zone Management Act consistency determination.

7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. Water Quality.

(a) In certain states and tribal lands an individual Section 401 Water Quality Certification must be obtained or waived. (See 33 CFR Part 330.4(c).)

(b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the state or tribal Section 401 certification (either generically or individually) does not require or approve water quality management measures, the permittee must provide water quality management measures that will ensure that the authorized work does not result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable, will ensure no more than minimal adverse effect on water quality). An important component of water quality management includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality. (Refer to General Condition 21 for stormwater management requirements.) Another important component of water quality management is the establishment and maintenance of vegetated buffers next to open waters, including streams. (Refer to General Condition 19 for vegetated buffer requirements for the NWPs.)

This condition is only applicable to projects that have the potential to affect water quality. While appropriate measures must be taken, in most cases it is not necessary to conduct detailed studies to identify such measures or to require monitoring.

10. Coastal Zone Management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived. (See 33 CFR Part 330.4(d).)

11. Endangered Species.

(a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or are and the amount of wetlands that exists on the property. For parcels greater than 1/4 acre in size, formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See Paragraph 13(f) below.);

(iv) A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(10) For NWP 31 (Maintenance of Existing Flood Control Facilities), the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

(i) Sufficient baseline information identifying the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;

(ii) A delineation of any affected special aquatic sites, including wetlands; and

(iii) Location of the dredged material disposal site;

(11) For NWP 33 (Temporary Construction, Access, and Dewatering), the PCN must include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources;

(12) For NWPs 39, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization for losses of waters of the US were achieved on the project site;

(13) For NWP 39 and NWP 42, the PCN must include a compensatory mitigation proposal to offset losses of waters of the US or justification explaining why compensatory mitigation should not be required. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

(14) For NWP 40 (Agricultural Activities), the PCN must include a compensatory mitigation proposal to offset losses of waters of the U.S. This NWP does not authorize the relocation of greater than 300 linear feet of existing serviceable drainage ditches constructed in non-tidal streams unless, for drainage ditches constructed in intermittent non-tidal streams, the District Engineer waives this criterion in writing, and the District Engineer has determined that the project complies with all terms and conditions of this NWP, and that any adverse impacts of the project on the aquatic environment are minimal, both individually and cumulatively;

(15) For NWP 43 (Stormwater Management Facilities), the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with state and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the U.S. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

(16) For NWP 44 (Mining Activities), the PCN must include a description of all waters of the U.S. adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the U.S., a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for all aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities);

(17) For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work; and

(18) For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

(c) Form of Notification: The standard Individual Permit application form (ENG FORM 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in Paragraphs (b) (1)-(18) of General Condition 13. A letter containing the requisite information may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may submit a proposed mitigation plan with the PCN to expedite the process. The District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary. The District Engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the

(a) The project must be designed and constructed to avoid and minimize adverse effects to waters of the U.S. to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts requiring a PCN, unless the District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.

(d) Compensatory mitigation (i.e., replacement or substitution of aquatic resources for those impacted) will not be used to increase the acreage losses allowed by the acreage limits of some of the NWPs. For example, 1/4 acre of wetlands cannot be created to change a 3/4 acre loss of wetlands to a 1/2 acre loss associated with NWP 39 verification. However, 1/2 acre of created wetlands can be used to reduce the impacts of a 1/2 acre loss of wetlands to the minimum impact level in order to meet the minimal impact requirement associated with NWPs.

(e) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., easements, deed restrictions) of vegetated buffers to open waters. In many cases, vegetated buffers will be the only compensatory mitigation required. Vegetated buffers should consist of native species. The width of the vegetated buffers required will address documented water quality or aquatic habitat loss concerns. Normally, the vegetated buffer will be 25 to 50 feet wide on each side of the stream, but the District Engineer may require slightly wider vegetated buffers to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the Corps will determine the appropriate compensatory mitigation (e.g., stream buffers or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where vegetated buffers are determined to be the most appropriate form of compensatory mitigation, the District Engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland impacts.

(g) Compensatory mitigation proposals submitted with the "notification" may be either conceptual or detailed. If conceptual plans are approved under the verification, then the Corps will condition the verification to require detailed plans be submitted and approved by the Corps prior to construction of the authorized activity in waters of the U.S.

(h) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases that require compensatory mitigation, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

20. Spawning Areas. Activities, including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream channelizing will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow.

This condition is only applicable to projects that have the potential to affect waterflows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to state and local authorities regarding management of water flow.

22. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to the acceleration of the passage of water, and/or the restricting of its flow shall be minimized to the maximum extent practicable. This includes structures and work in navigable waters of the U.S., or discharges of dredged or fill material.

23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the U.S. or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

Enclosure 3

Permittee: Santa Clara Valley Water District (SCVWD)

File Number: 26877S

Certification of Compliance
for
Nationwide Permit

"I hereby certify that the work authorized by the above referenced File Number and all required mitigation have been completed in accordance with the terms and conditions of the Nationwide Permit."

(Permittee) (Date)

Return to:

Bob Quebedeaux
U.S. Army, Corps of Engineers
San Francisco District
Regulatory Branch, CESPN-OR-R
333 Market Street
San Francisco, CA 94105-2197